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FRED MANVILLE TAYLOR

Thirtieth President of the American Economic Association, 1928

Fred M. Taylor, son of a Methodist minister, was born in Northville, Michigan, July 11, 1855. He died in California August 7, 1932.

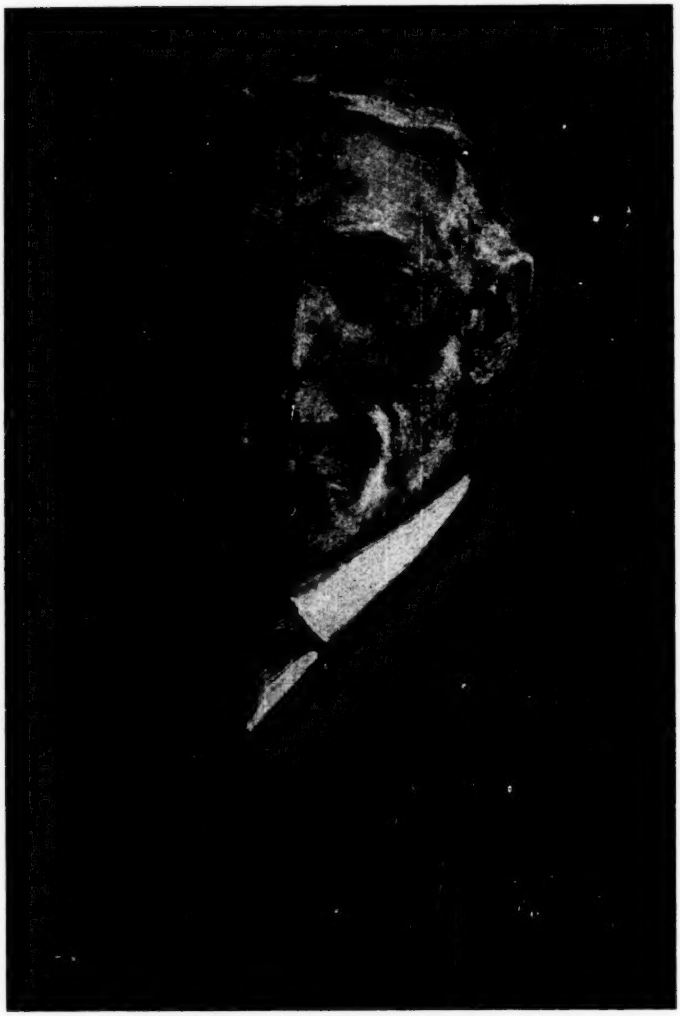
After having completed his preparatory schooling at Houghton and Mt. Clemens, Fred Taylor entered college at Northwestern University. He received his A.B. degree from that institution in 1876 and a master's degree in 1878. Northwestern also granted him an honorary LL.D. in 1926. In 1879 he joined the faculty of Albion College, Michigan, where he taught history, English, political science, and political economy. He remained at Albion until 1892, but continued his studies ad interim at Johns Hopkins (with Ely and H. C. Adams) in the autumn of 1884 and at the University of Michigan, 1887-88. He received his Ph.D. (one of the first granted at Michigan) in 1888. His dissertation, "The Right of the State to Be," was printed in Ann Arbor in 1892. In 1891, after having substituted for H. C. Adams for a semester (in 1890-91), he accepted an offer of assistant professor at Michigan and remained at Ann Arbor until his retirement in 1929. He was promoted to junior professor in 1894 and to full professor ten years later. From 1929 until his death he lived in retirement in California.

During his first fourteen years at Ann Arbor, Taylor's most creative work was done in the field of money and banking. His interest in this field culminated in the publication of his textbook, *Some Chapters in Money* (1906). Thereafter his interests again shifted to abstract theory and to the general theory of capitalism and socialism. *Some Readings in Economics* was published in 1907 and the first edition of his *Principles of Economics* in 1911. The ninth and final edition of the *Principles* was published in 1925. The title of his presidential address to the American Economic Association in December, 1928, "The Guidance of Production in a Socialist State," reflected his interest in reform movements.

Although Professor Taylor's publications were not extensive, his influence was widely felt. It was through his teaching activities chiefly that he attained his enviable reputation as a perfectionist. He brought to economics the flavor and methodology of the more exact sciences. His teaching activities absorbed much of his energies. This, together with poor health, arrested somewhat the extension of his reputation as a scholar; thus he was seventy-three years old when elected president of the American Economic Association.

F. M. Taylor was first listed in *Who's Who in America* in 1901-02. An obituary note by Z. C. Dickinson appeared in the *Economic Journal*, June, 1933, page 347, and another article by the same author is found in the *Dictionary of American Biography*, Volume 18 (1937), page 323. Professor Dickinson is at present preparing a volume on *Fred Manville Taylor, Michigan Political Economist*. An article on F. M. Taylor by Frank H. Knight was published in the *Encyclopaedia of the Social Sciences*, Volume 14 (1935), pages 541-542.

Number 30 of a series of photographs of past presidents of the Association.



F. M. Taylor.

The American Economic Review

VOLUME XL SEPTEMBER, 1950 NUMBER FOUR

THE PROBLEM OF ECONOMIC INSTABILITY

By

Emile Despres Milton Friedman
Albert G. Hart Paul A. Samuelson
Donald H. Wallace

This is a report prepared under the auspices of the American Economic Association. It is not, however, an official utterance of the Association which by provisions of its Charter will not "commit its members to any position on practical economic questions."

The American Economic Association is an organization composed of persons interested in the study of economics or the economic phases of political and social questions. This Association is the organ of no party, sect, or institution. It has no creed. Persons of all shades of economic opinion are found among its members, and widely different issues are given a hearing in its annual meetings and through its publications.

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A FOREWORD ABOUT THIS REPORT

This report was prepared by a subcommittee of the Committee on Public Issues of the American Economic Association. Members of the subcommittee were Emile Despres of Williams College, Milton Friedman of the University of Chicago, Albert G. Hart of Columbia University, Paul A. Samuelson of the Massachusetts Institute of Technology, and Donald H. Wallace of Princeton University, chairman.

The purpose of this report is to make available to the interested public a summary of the expert knowledge of economists on the nature of the problem of economic instability and its treatment. The subcommittee states that "we have endeavored to state conclusions on facts, ideas, and policy where we believed there was a consensus among economists. We have also tried to point out major differences among economists and major gaps in knowledge."

The report is a joint product, actively participated in and signed by all members of the subcommittee. As is usually true of committee reports, each member has reservations on some particular points. Many of these are, of course, reflected in the disagreements described in the text.

In March, 1947, the Executive Committee authorized and requested the president of the Association to appoint a Committee on Public Issues with the responsibility, among other things, of arranging for the preparation of statements on issues of public policy. Such a committee was promptly appointed. The committee decided to establish subcommittees to prepare statements on issues of public policy. Reports of the subcommittees were to be addressed to the public and were to summarize the expert knowledge and opinion in the field, calling attention also to the main gaps in important and relevant information. The Committee on Public Issues assumed general editorial responsibility for the reports of the subcommittees which were to be transmitted by it to the president of the Association.

The present report was reviewed by the Committee on Public Issues and transmitted to the president in December, 1949 with a unanimous recommendation of the committee that it be published. In conformity with the procedure for these reports, this recommendation was considered by the president and the Executive Committee, who directed publication of the report.

SUMNER H. SLICHTER
Chairman, Committee on Public Issues

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THE PROBLEM OF ECONOMIC INSTABILITY

This report is about the problem of economic instability in peacetime in the United States—how to avoid mass unemployment and major fluctuations in the price level while maintaining steady growth in production. It was written in 1949, before military action in 1950 transformed the immediate goals of the economy of the United States. It does not deal with problems of economic mobilization and economic stabilization for war, partial or total, although some of the basic facts and analysis presented here are fundamental for wartime economic problems, as well as for those of peacetime.

The report is addressed primarily to the interested public, not to economists. Its purpose is to tell them what economists do and do not know about the problem of economic instability. Its preparation and publication reflect the belief that there is a body of technical knowledge in economics that has a great deal to contribute to the formation of intelligent policy on economic stability.

This is a brief report dealing with complex and complicated problems. The details, refinements, and qualifications needed in their work by experts in economic analysis or administration would be out of place here. Economics can best serve the public only if its useful conclusions can be briefly and simply explained.

This report endeavors to explain the nature of the fluctuating economic pressures which stabilization policy must offset, remove, or divert into useful channels, and to present economists' thinking about policy measures helpful in stabilization and about the problem of building a coherent program. While economists are not unanimous about stabilization problems, the committee which drafted this report believes that there is a broad consensus which the report reflects. Important professional disagreements are also noted, however, and the range of opinions within the committee is wide enough to make it likely that a large share of such disagreements have been located.

This report has been prepared under the auspices of the American Economic Association. It is not, however, to be considered an official utterance of the Association which by provision of its Charter does not "commit its members to any position on practical economic questions."

I. *Objectives*

Price and Employment Objectives

Domestic economic stability has two major objectives—sustained full employment, and stability of price levels. The importance of full employment was underlined by our experiences in the 1930's, and has been formally recognized in the Employment Act of 1946. The importance of price-level stability, already widely understood before the war, has been emphasized by our experiences in the 1940's.

Full employment means that qualified people who seek jobs at prevailing wage rates can find them in productive activities without considerable delay. It means full-time jobs for people who want to work full time. It does not mean that people like housewives and students are under pressure to take jobs when they do not want jobs, or that workers are under pressure to put in undesired overtime. It does not mean that unemployment is ever zero. People are unemployed for a time while changing jobs. Full employment is the absence of mass unemployment. By this standard, employment was full, and probably overfull, most of the time during the years 1943-48.

Price-level stability means the absence of any marked trend or sharp, short-term movements in the general level of prices. Marked shifts in *relative prices* of individual commodities, reflecting changes in consumer preferences, or in conditions of production, are however, entirely compatible with a stable average *price level*—in fact, most economists favor both price-level stability and flexibility of relative prices.

The desirability of full employment is obvious: unemployment means waste of potential output and hardship for the unemployed and their dependents. The desirability of price-level stability is, perhaps, less obvious. But, on the one hand, any large price drop is almost sure to be accompanied by serious unemployment. And, on the other hand, inflation, though pleasant for some people, hurts those whose dollar incomes do not increase or increase less than living costs; and also sharpens conflicts of economic interest and impairs the group consensus necessary for solving national problems.

The Relation of Stability to Other Objectives

Economic stability is but one among a number of widely accepted objectives for social policy. To some extent the attainment of economic stability is likely to promote other objectives as well. But some measures to promote stability may to some extent conflict with them; hence, it must be borne in mind that economic stability is not desired at all costs.

Three other objectives—peace, progress, and freedom—call for special mention, by reason of their importance and their close relation to economic stability.

The strengthening of peaceful and democratic institutions in the rest of the world depends, much more than most Americans realize, on the maintenance of prosperity in the United States. If depressions in the United States undermine the markets of other countries, or if for reasons of domestic policy we do not let imports flow in freely, the prosperity of other countries will be endangered. Instability in the United States is thus likely to generate economic and political reactions abroad that will endanger the preservation of peace.

Progress involves change, reorganization of economic resources, replacement of the old by the new. A dynamic, progressive economy is one in which new techniques are constantly being developed and introduced, new products are seeking to attract public favor and replace old products, new firms are challenging the old. Such an economy cannot be completely stable. Adaptation to change takes time and involves friction, with resulting dips or jogs in production and employment. On the other hand, willingness to venture into new lines and to develop new products and processes is greatly hindered if individuals and business firms must devote a considerable part of their energies and resources to adjusting themselves to substantial fluctuations in the general level of economic activity.

The essence of freedom is the exercise of free choice by individuals with respect to a wide range of their activities—in the economic sphere, a large measure of freedom in choice of goods to consume, of occupations to follow, of ways of investing or using property. Freedom in these respects implies freedom to experiment, and to change one's mind. It also implies that individuals can and will make mistakes. It thus implies change, which in turn forces adaptation to change. On the other hand, marked economic instability creates conflicts and hardships, sets group against group and produces dissatisfaction with the existing structure of society. Thus it may undermine the basic consensus on which freedom and democracy rest.

The Institutional Setting

Americans live today in a society with a large measure of personal freedom, a great deal of private enterprise, and a great deal of government activity. This report treats the problems of economic stability in this kind of mixed society. It assumes that, while government will continue to undertake much economic activity directly and to control private activity in many ways, the bulk of our people will be employed by private business or be self-employed; and that decisions on what to consume, where to work, how to use property, and what and how much to produce will be governed primarily by incentives affecting the people making them, rather than by directives from government. At present the great majority of Americans—including the writers of this report—desire this kind of institutions. Hence this report does not treat proposals for effecting economic stability by extensive government directives requiring economic units to do certain things and forbidding them to do other things.

II. *The Historical Record*

Section II gives some main facts of the historical record of instability. Section III presents some basic ideas which, with the facts of Section II, form the basis of the discussion of policy measures in Sections IV-VII.

Economic instability has been chronic in America, as in other advanced economies. Price records, going back to colonial days, show at least one sizable swing each decade. Production records, going back to the Civil War, show numerous depressions and booms of output, few long stretches of full-volume production. The records of employment and unemployment, fragmentary until recent years, confirm this picture of instability, as far as they go.

This record of instability is frequently analyzed in terms of "business cycles." In depressions we find a phase of "revival," a few months in which many prices and much non-agricultural employment and output turn upward. Then comes a phase of "expansion," sometimes lasting for years, with output high or rising, and with prices high or rising, or both. Eventually comes a phase of "recession," occasionally dramatic, when within a few months many prices and output and employment in many industries turn downward. This is often followed by a phase of "contraction," with further declines of output, employment, and prices.

Depressions

In the Great Depression of the 1930's with its mass unemployment, output was for a decade far below what our labor force and plant could produce. The total loss of output that could have been produced and was not has been estimated as running into the hundreds of billions of dollars—comparable to the volume of output that went into the waging of World War II. But this depression was not our first long and deep depression. There were dismal years after 1837, and the depressions of the 1870's and 1890's were protracted and severe.

Besides these major depressions, sharp minor slumps appear in the records for 1884-1885, 1904, 1908, 1914, 1920-1922, and 1937—not to mention such dips of output as 1924 and 1927, which were picked up in the seismographic records of the business-cycle analysts, but did not involve serious and prolonged unemployment.

It is not necessary first to be prosperous in order to have a slump of output. A depression-within-a-depression can happen, and did happen in 1895-1898 and 1937-1938.

Inflations

Full-blown inflation—a price rise which is widespread, rapid and carries prices to a peak 50 per cent or more above the starting point—has happened in American history only during and after wars. Our only inflations of this sort were linked with the Revolution, the War of 1812, the Civil War, World War I and World War II. (The Mexican War and Spanish-American War did not subject the United States to enough strain to generate inflation.) However, there have been periods of sustained though less severe price rise during peacetime. For example, between 1899, a year of recovery, and 1909 wholesale prices rose by one-third.

Sustained Prosperity

The economic records show few periods of sustained prosperity. Between the big depressions of the 1870's and 1890's, the decade of the 1880's was mostly prosperous, though it contained also a two-year slump with a panic in 1884. Prosperity also reigned in most of the years 1899-1913 although there was a panic in 1907, and brief, sharp slumps in output occurred in 1904, 1908, 1911, and 1914.

The interwar years exhibit the longest record of sustained prosperity, as well as the worst recorded depression. The years 1923-1929 were on the whole years of prosperity. The setbacks of 1924 and 1927 never became serious.

Some Important Characteristics of Business Cycles

Some of the most important uniformities found by study of business cycles are the following:

1. Prices and production, outside of agriculture, ordinarily rise and fall together, instead of moving in opposite directions.
2. Total expenditure on durable goods fluctuates by a greater percentage than spending on non-durable goods. Total private spending on capital goods (plant, equipment, housing, and the like) fluctuates by a greater percentage than consumption expenditure.
3. Total output and employment fluctuate by a much larger percentage in *durable-goods* industries than in *non-durable-goods* industries. For instance, auto production is more unstable than gasoline production, house construction than the renting of rooms.
4. Total output and employment fluctuate by a much greater percentage in construction and capital equipment than in consumer goods.

5. Current expenditure on business inventories fluctuates by a greater percentage than total sales.

6. Large changes in total output and employment or in the price level are normally accompanied by large changes in the same direction in the volume of money, *i.e.*, currency and bank deposits, and a change in the velocity of circulation of money.

7. Some prices are highly flexible, others highly rigid. Price rigidity centers in manufactured goods, price flexibility in farm products and foods.

8. Total profits fluctuate by a much greater percentage than other types of income.

The lack of uniformity found in some key characteristics of business cycles is equally significant:

1. The *length* of cycles, averaging about 3½ years, varies widely. For example, counting from trough to trough we find a 5-year cycle in 1927-1932, from peak to peak an 8-year cycle from 1929-1937. On the other hand, 1919-1922 and 1920-1923 were 3-year cycles, and shorter ones have been observed. So we can never tell where we are in the cycle by counting months elapsed since some past event.

2. The *amplitude* of cycle swings is very irregular. The down-swing of 1923-1924, for example, reduced manufacturing output about a tenth; that of 1937-1938, by nearly half. So we cannot count on any particular amplitude as "normal." Moreover, the evidence is not clear whether as time goes on cycles are becoming more or less severe.

3. Expansion in some cycles brings output up to a full-employment level and holds it there for some time, as in 1925-1927. In other cycles, expansion leads only to a "submerged peak," with unemployment still heavy, as in 1895 and 1937. There is evidence that in full-recovery cycles building construction characteristically contributes heavily to the expansion, while in submerged-peak cycles it does not.

4. No two cycles are exactly alike in the relative rôles played by different factors such as commodity prices, security prices, inventories, foreign loans, or construction. Inventory building and commodity price speculation characterized the boom of 1919-1920 followed by a price collapse. Stock market speculation and foreign loans were important elements in the boom preceding the 1929 decline.

5. Numerous attempts have been made to use our knowledge about uniformities in business cycles to "forecast" the future course of business activity. Economic forecasting has not developed to the point where it is a reliable guide for national policy. Even identification of phases of the cycle as they happen, or soon afterward, is far from easy.

In making use of our knowledge of the past we must be careful to give adequate weight also to our knowledge of the present. Changes in political or economic circumstances or in our institutions make older experience partly obsolete. The record suggests that in peacetime our economy is usually less susceptible to inflation than to depression. But the tremendous government requirements on production in "cold war" and the backlog of demands on the "social security state" are new elements that may create inflationary pressure for some years to come. Moreover, the increased power of organized labor added to the power in business and in farm organizations may introduce an inflationary bias.

If we do not have much more difficulty with inflation, it will probably be because world political tension eases and backlogs of demand prove less urgent than they now look; in that event, we may have to make adjustments to a serious decline of private investment and government purchase of goods and services within a few years. Indeed, some economists fear that such a decline might usher in a protracted period in which large unemployment would be chronic, unless overcome by extensive government programs. Other economists see a danger of both chronic unemployment and a persistent inflationary tendency combined.

III. *Basic Ideas*

Study of business fluctuations has yielded, in addition to the historical knowledge just sketched, a large amount of useful analysis. Together, these two kinds of knowledge afford an adequate basis for framing stabilization policies that can avoid both severe unemployment and severe inflation. The job of this section is to outline some of the ideas most useful in analysis of business fluctuations. First, however, we should dispose of some common misconceptions.

There is a widespread impression that economists disagree so much that they can give no sound guidance on policy. This is erroneous. There is, indeed, a good deal of disagreement, but it is much less than it seems to outsiders. Economists do not spend much time talking or writing about the large part of their subject matter on which they agree. As in all branches of learning, professional discussion relates chiefly to advancing the frontier of knowledge, where controversy and criticism are indispensable for progress; and the part of the discussion most likely to catch the attention of journalists is whatever happens to be least good-tempered or most extreme, rather than most fundamental. Moreover, many disagreements are merely about how to formulate findings which all accept, or about the relative quantitative weight of factors whose importance nobody denies. Again, many differences of opinion among economists on public policy reflect differences in philospohy rather than in economic analysis as such. This does not mean that their views are to be disregarded. The essence of democracy is to permit different opinions on public policy and to provide means of selection and compromise that enable adoption of workable policies and programs in the face of differences. Moreover, disagreements among economists help to mark out the areas where future developments and effects of policy are peculiarly uncertain, and thus show points at which policy must be kept flexible to permit adaptation as a situation develops.

A second misconception is contained in the proposition that effective stabilization policies can be designed only if we understand fully all the causes of fluctuations. Partial knowledge can be very useful for deciding how to act. People need not know just what causes cloud bursts, or just when they will occur, in order to use their knowledge of the course of floods to design safeguards against flood damage. In economics people need not know, for example, just what makes the volume of construction contracts change from time to time, in order to design arrangements to safeguard us against a general economic collapse when construction shrinks. More complete knowledge is, of course, worth seeking in order to improve the design of policy, but as we go along we can effectively use what we do know.

A third misconception is that inability to forecast coming economic changes accurately leaves us helpless in the grip of events. Present limitations on forecasting, and lack of complete understanding of causes, do make it impossible to treat economic instability solely by use of "preventive medicine." This is not to say, however, that it is impossible to tell when the economy is really sick and may get worse unless curative measures are taken; or that it is impossible to design effective cures. We can, in fact, diagnose real trouble soon enough to treat it. And, although we may not be able to prevent mild recessions or inflations, we do know enough to design policies that can keep them from developing into prolonged periods of mass unemployment or violent inflations.

Classes of Expenditure and Decisions

Substantial changes in total expenditure in the whole economy mean substantial changes in total employment or in the price level, or in both.

In studying the course of fluctuations or analyzing policy proposals, economists commonly break down the total expenditure into four main headings: (a) consumption expenditure; (b) domestic private investment spending (or "capital formation") on new buildings, equipment, and additions to inventory; (c) government expenditure on goods and services; and (d) net foreign balance, representing the balance of all the goods and services we sell the rest of the world over what they sell us (an item which may, of course, be positive or negative in any given year).

Each of these major expenditure classes can be further subdivided. These divisions and subdivisions group together expenditures which rest on similar types of *decisions*.

Consumption expenditure represents use of income by households for direct enjoyment. Sub-groupings run in terms of the durability of the things bought. Services and perishable commodities involve little forward-looking calculation. At the other extreme, the buying of new houses is regarded as a business-type of decision and classified with investment. Other durable-goods buying is moderately forward-looking, but is classed as consumption rather than investment.

Domestic private investment represents spending by business of undistributed profits, cash assets or proceeds of new security issues or bank loans to buy additional goods for business use. Its main components are purchase of new plant and equipment, additions to inventories, and purchase of new housing.

Government expenditure on goods and services includes payment for services of government employees and purchase from private business of supplies, equipment, buildings, etc. (including, for example, goods bought under the Marshall Plan). In addition, government makes outlays for interest, veterans, Social Security benefits, and the like, where the government does not get currently produced services or commodities in exchange. These are called "transfer payments," and are treated essentially as taxes with a minus sign.

Decisions to Produce and to Buy

Except for the limited sector of direct government employment, output and employment are set in the first instance by private decisions. Business decisions to produce rest largely on the selling market created by non-business purchasers—consumers, the government, and foreigners—and on the buying markets in which materials, property, labor, and funds are obtained.

The amount of consumer expenditure depends largely on the incomes received by people from the proceeds of productive operations. In other words, households get income in the form of wages, salaries, dividends, etc., from business in return for providing services; and the business output of consumer goods and services is sold to households in return for expenditures out of this income. The simple circle of production-income-expenditure-production is, however, modified by saving of individuals and business enterprises and by business spending on plant and equipment and inventories. Business investment spending is forward-looking and is therefore influenced by many diverse factors, not only by the current state of business activity. The fiscal operations of government also modify the circle by taxation, which reduces taxpayers' disposable income, and by government payments such as salaries and "transfer payments" that constitute income for households.

The total stream of income, before taxes and including business profits not distributed to owners, can be shown as a matter of accounting to equal the total value of contemporaneous output, including items added to business inventory and plant and including government services valued at cost. But this is simply a bookkeeping identity following from the fact that what one consumer, business enterprise, or government agency treats as an expenditure is treated by some other unit as a receipt. In this bookkeeping sense any level of output, high or low, is potentially self-financing—that is, it sets up a flow of incomes out of which that amount of output *could* continuously be bought at current prices. It does not follow, however, that any existing level of output and employment *will* perpetuate itself—the record shows that it never has for long. For example, the accounting identity between income and value of output may reflect the unwilling acceptance of large inventory accumulations by businessmen in consequence of an unexpected decline in consumer expenditures. In this case, the identity conceals forces making for a decline in income. Or, the identity may reflect an unintended piling up of unused profits in the hands of businessmen in consequence of an unexpected rise in consumer expenditures. In this case, the identity conceals forces making for a rise in income.

Changes in total expenditure and income reflect changes in expenditure by some units in the economy. Total consumer expenditure can and may vary in relation to the flow of income set up by production for various reasons, such as a general change in the fraction of their income people desire to save, or a change in tax rates, or in government "transfer payments," or in dividend rates. Business enterprises may decide to increase or decrease expenditure on plant and equipment or on inventories because of changes in the business outlook, technological change, interest rate movements, or other factors. This will set in motion forces that tend toward increase or decrease in total expenditure and income in the whole economy. Changes in tax structures or in the level of government expenditures, and changes in our net foreign balance may also affect the level of total expenditure and income. Political changes abroad may lead to expansion or contraction of government outlays for military and foreign-assistance programs.

In general, a decision by any group to increase its expenditures in relation to its receipts is a force making for an expansion in aggregate expenditures and income, and to decrease its expenditures in relation to its receipts is a force making for a decline in aggregate income. Whenever the net effect of the decisions of consumers, business, and governments is to raise total expenditure and income there will be an increase in output and employment, or in the price level, or in all three—unless some decisions are changed. Similarly, when the effect is toward lower expenditure and income, there will be a decline in output and employment or in the price level or in all three—unless some decisions are changed.

The decisions by firms and households that make for expansion or contraction in total income are influenced not only by the flow of income but also by monetary factors: holdings of cash and of liquid resources (government securities and other securities easily cashed) and the cost and availability of bank and other credit. When firms and households regard the amount of cash and other liquid resources they hold as large relative to their total wealth, they will try to convert part into other forms of wealth; that is, spend more than they are currently receiving, thereby tending to increase total money income in the economy. Similarly, when it is relatively easy and cheap to borrow, firms and individuals who seek to make investments will find it easy to finance them and will thereby add to the upward pressure on income. Conversely, when firms and households regard the amount of cash and other liquid resources they hold as relatively small, they will try to spend less than they receive; when it is relatively difficult to borrow, investment will be discouraged; both of these will tend to reduce aggregate money income.

It follows from these considerations that one way to counter forces making for contraction is by monetary action designed to increase the amount of cash or other liquid resources held by individuals and firms and to reduce the cost and increase the availability of loans. Similarly, one way to offset any forces making for expansion is by monetary action designed to reduce the amount of cash or other liquid resources held by individuals and firms and to increase the cost and reduce the availability of loans.

With an upswing of business activity and rising prices, most borrowers look like better risks, and there is an expansion of bank financing of business and consumer buying. In a business recession the opposite occurs. This instability of bank credit is enhanced by the great elasticity inherent in a banking system with fractional reserves against deposit liabilities. The banks as a whole can, through their loan operations, create a quantity of purchasing power in the form of deposits equal to several times the amount of their reserves. With present legal reserve requirements and habits of the public with respect to holdings of pocket-book cash, the banking system can create new deposits equivalent to four or five times the amount of excess reserves. In a recession, banks may seek to increase their reserves as a fraction of their liabilities, thereby forcing a contraction in deposits, and conversely in an upswing. In addition, there are a number of factors that tend to increase reserves in business expansion when it would be desirable for them not to increase, and to decrease reserves in business recessions when it would be desirable for them not to decrease.

Expansion and contraction of bank credit is in part a reflection of business fluctuations. But most students of business cycles believe that for the reasons just cited, our banking system has an effect in amplifying these fluctuations, although there is wide disagreement on the quantitative importance of this factor. The great depression of the 'thirties was sharpened by credit contraction, and the postwar inflation of 1946-48 was heightened by credit expansion. Many economists regard our present banking system as an automatic destabilizer, unless effectively controlled.

Economists use the analytical tools outlined above to look for elements in the situation that can lead to expansion or contraction. They also rely heavily on the principles of national accounting to check the consistency of their reasoning. Explanations which have not been checked in this way for consistency are only too common—witness the theories underlying the Townsend Plan, "Thirty Dollars Every Thursday," Social Credit, and many other "schemes"—and would, if used, lead to gross errors in policy.

We can see the shadows of a good many future changes in components of the economy. The postwar boom in housing and automobiles will slacken sooner or later. Easing of international tension would allow armaments to diminish. Developments in atomic energy may some day induce a temporary bulge in capital investment expenditure. The object of stabilization policy is not to prevent all fluctuations in components, but to see that they offset rather than reinforce each other. Reduction of armaments or housing brings a shrinkage of income earned in those sectors, which threatens to induce cutbacks also in things we can then afford to produce in greater quantity, emergency needs having been partly met. The basic strategy of economic stabilization is to mitigate and offset the effect on total expenditure of changes, upward or downward, in particular sectors or components of the economy.

Room for Policy

As explained at the outset, this report excludes from consideration stabilization methods which, involving large assumption by government of the decision-making of households, of business firms, of labor, farm, and other groups, would negate basic freedoms. Also, it is plain that governmental decision-making of this sort would be clumsy and ineffectual. Even totalitarian governments which have no objection in principle to this type of "planning," find it necessary to decentralize most decisions to organizations with much the functions of our firms and households, and to guide decisions by "incentives."

Another conceivable method is to attempt stabilization by setting up organizations in each line of production and instructing each to stabilize its own sector. This may sound excellent for a moment, but it does not stand examination. Such a sector-stabilization organization, confronted with changes in the demand for its output, could not stabilize *both* its selling-price *and* its sales and output. The record of behavior of producer organizations suggests that they usually sacrifice output stabilization to price stabilization, or even to price boosting. Moreover, shifts in the *components* of output and the price level are often desirable. New products find their place by expanding their output, bidding up the prices of labor and other resources, and forcing down the prices and outputs of competing products. To stabilize the individual components of the economy, if we could do it, would be to throw away our prospects of progress and scrap the adaptive mechanism which facilitates progress.

Manifestly there is some room for groups and leaders, conscious of the stabilization problem, to modify their decisions in ways that will help to stabilize the economy. But since individual leaders are ordinarily in a relation of stewardship to others, their freedom to modify decisions in this way is limited. The primary responsibility for stabilization policy falls on government, particularly the federal government, and on public bodies such as the Board of Governors of the Federal Reserve System.

In a system where the great majority of workers are in private employment government stabilization policy consists primarily in altering the general economic climate so as to mitigate or offset developing fluctuations in private business. There is a wide variety of measures by which government can do this. Some of the more important are the following:

1. Change in the amount of tax revenue taken by government from incomes of individuals or businesses. Some change occurs automatically with change in incomes. Alteration of tax rates or of the design of the tax structure could give greater change.

2. Change in government contributions to the income stream through "transfer payments," such as unemployment compensation and farm income supports. Again some change occurs automatically but more can be obtained by change in the rates or structure of "transfer payments."

3. Change in amount of government expenditure on public works or on other things bought by government.
4. Change in the incentives to individuals by changes in tax rates or structure, or in the rates or structure of "transfer payments," or in the kinds of expenditure undertaken.
5. Change in the cost and availability of bank credit, effected through controls of the monetary authorities.
6. Change in the structure of the public's financial assets and liabilities brought about by monetary or debt management policy.
7. Influencing the business outlook by government pronouncements and prospects of future government action, thus affecting investment decisions or current scheduling of output and employment, or both.
8. Government influence on the price-making and wage-making machinery.
9. International economic policy.

IV. *Fiscal Policy*

A. *Strategic Principles for Fiscal and Monetary Policies*

Sections IV and V discuss fiscal policy and monetary policy. In these fields economics provides some strategic principles for achievement of economic stability. The most important are:

1. Government tax revenue should be higher relative to government expenditure in periods of high employment than in periods of substantial unemployment.
2. Money and credit should be relatively tight in periods of high employment and relatively easy in periods of substantial unemployment.

These two principles are intended to counteract fluctuations in total money demand, thereby restraining price fluctuations and promoting stable, high employment. Whatever may be considered the "normal" or desirable level of government tax revenue and expenditure, and whatever may be considered the "normal" or desirable relationship between them—as far as these can be determined from considerations other than stabilization—tax revenue should be higher than this relative to expenditure in times of high employment and lower than this relative to expenditure in times of substantial unemployment. Whatever may be the "normal" or desirable monetary policies, including debt management—and these may be determined in part on the basis of considerations other than stabilization—money and credit conditions should be relatively tight in times of high employment and relatively easy in times of substantial unemployment.

These are principles of operational strategy. The Congress and the Executive can put them into operation.

Nearly all economists agree with these strategic principles of stabilization. Disagreements relate chiefly to tactics, *i.e.*, specific measures to put these strategic principles into operation.

B. *Importance of Fiscal Policies of Governments*

Despite the primary rôle of private enterprise in our economy, government expenditures and receipts have reached a scale that makes them a crucial influence on the way the private economy works. In 1949 when the national income was a little more than $200 billion, federal, state, and local governments spent about $60 billion. And there seems little prospect of a large decline in government expenditures in the foreseeable future. Plainly, government fiscal policies and their timing constitute one of the major influences on the state of employment, production, and prices, whether or not they are deliberately framed with that end in view.

Government affects business activity through both sides of its budget. Wages paid to government employees, interest paid to holders of government bonds, and payments to veterans, to the aged, and to the needy, all constitute income that can be used to buy consumption goods from business. Government procurement of goods is a direct market for business. On the other side of the budget, taxes capture funds that consumers might have spent, or that business firms might have spent on plant and equipment. Taken by themselves, tax collections tend to contract the market of business, and thus to reduce employment or lower prices; and government expenditures, taken by themselves, tend to expand the market and thus to increase employment or raise prices.

It is not only the *size* of revenue and expenditure that counts; their qualitative *composition* is also important. For example, the effects of "transfer payments" depend on who gets them and on what terms—for example, whether unemployment compensation goes largely to the poorest workers and whether payments are set so high as to discourage acceptance of job offers. Again, a billion dollars of taxes collected in one way may have different economic effects from those attending a billion dollars levied in another way, because incentives are affected differently. For example, when people must pay one-fifth or more of their extra earnings to the government, their decision as to whether to work longer or shorter hours may be influenced. To take another example, a particular treatment of business losses in the tax laws may affect people's willingness to venture their capital in new activities.

On the other side of the budget, spending to build roads may stimulate private investment in automobiles, garages, and trucks; some other types of public expenditure may have adverse repercussions on private investment. Some government spending and taxing policies may affect, rationally or irrationally, the psychological climate within which families and businesses make their decisions.

Fiscal measures for stabilization may be divided into three types: (1) those that are built into the fiscal system and operate automatically; (2) measures adopted in advance that are to go into effect promptly in certain specified contingencies; and (3) measures adopted only as the occasion arises.

C. *Automatic Stabilizers in the Fiscal System*

Since the prewar period the automatic stabilizing effect of federal fiscal operations has become substantial as a result of the increase in built-in stabilizers, including the pay-as-you-go principle, and the great expansion in the scale of the budget. Most economists consider the marked increase in automatic stabilizers a highly favorable development with respect to maintenance of economic stability.

When total income rises, the existing structure of federal taxes and expenditures tends automatically to increase government revenues relative to expenditures, and when total income falls, to increase expenditures relative to revenues. These changes tend to mitigate or offset inflations or depressions, in part at least.

On the spending side, unemployment compensation, relief, farm benefits, and the like tend to rise and fall with unemployment, and so to be higher in depression than in prosperity. Most other federal expenditures would not change much automatically with changes in the level of total income.

On the revenue side, tax receipts vary sharply in the same direction as national income. Revenue from the personal income tax, our largest single tax, varies directly with changes in national income, and in greater proportion owing to the "progression" in the tax structure. The next largest tax, that on corporate income, also varies in greater proportion than national income, since corporate income fluctuates more sharply than national income itself. Social security contributions from payrolls move roughly in proportion to national income.

We may summarize the automatic stabilizing influence of the 1949 federal fiscal system roughly as follows: in the absence of any offsetting action by Congress or the Executive, every drop of $10 billion in national income will lower taxes by something like $3 billion, thereby reducing by $3 billion an existing surplus or increasing by that amount an existing deficit. Similarly, every rise of $10 billion in national income will increase tax receipts by something like $3 billion thereby increasing an existing surplus by $3 billion or reducing an existing deficit by that amount. Moreover, these effects on the condition of the budget will be accentuated by automatic changes in expenditure. As explained above, every drop in national income will tend to raise federal government expenditure and every increase in national income will tend to lower it. Many economists think that some further increase in built-in automatic stabilizers is possible and desirable.

D. *Needed: A Principle to Replace the Annually Balanced Budget*

Automatic built-in fiscal stabilizers can be either supplemented or thwarted by explicit legislation and administrative action taken in response to changing business conditions. When high incomes cause tax collections to exceed expenditures, legislatures may destroy this automatic anti-inflation effect by cutting tax rates or by spending recklessly. Likewise, the automatic anti-unemployment effect of built-in stabilizers may be lost if, as happened in 1932, falling tax receipts in depression lead to reduced government outlay and higher tax rates. We cannot balance the budget annually and at the same time have a stabilizing fiscal policy—on this almost all economists agree. The tradition of an annually balanced budget calls for discretionary action from time to time that perversely cancels out the effects of the automatic stabilizers now built into the system.

Abandonment of the rule of an annually balanced budget necessitates adoption of other standards of budgetary policy to enable Congress and the electorate to determine when increases in expenditure call for increases in taxes and when decreases in expenditure can safely be balanced by decreases in taxes. Otherwise, there would be no check to waste and inefficiency, or to expenditures exceeding what the people really want, and hence no check to chronic inflation.

One important proposal is to aim at budget balance over a longer period. Nobody would advocate a *monthly* balance irrespective of seasonal changes; why should any special magic be attributed to a yearly balance irrespective of business-cycle changes? The so-called Swedish budget proposal is to balance the budget over a business cycle. Extra spending would call for extra taxes, but not necessarily for an equal amount of tax revenue in the same year. Budget surpluses in some years would cover the deficits of other years. Uncertainties about the length of the "cycle" and about the relative duration of depression and prosperity would, of course, create difficulties in application, but this proposal deserves serious consideration.

Another possibility is to preserve balance each year in a "target" or "normal" budget in which tax revenues, unemployment compensation and relief expenditures, and other items that must or should vary with business conditions, are always entered at the amounts they would be in a period of high employment and national income without inflation. An increase in the general scale of government activities would then call for a tax rate increase, but a bulge of relief expenditures and a drop in tax revenue because of a business slump would not. Nor would an increase in tax revenue accompanying inflation call for a tax cut. Many economists believe this plan would be a marked improvement over the traditional annual budget balance rule. It would, however, present some difficult problems in application, particularly what levels of employment and national income would be the proper basis for the "target" or "normal" figures of tax revenues, relief expenditures, etc.

A third proposal is a modified version of the annual balance rule, applicable in periods when the economy is prosperous and stable and there is no evident swing toward depression or inflation. In this situation, newly planned increases or decreases in government expenditure would call for tax-rate changes to produce corresponding changes in tax revenue. Thus, proposed increases in government expenditure would have to meet the traditional test of whether they are worth their cost in terms of higher taxes. As far as it goes, this proposal would probably have the approval of most economists. But it provides no standards for appraisal of the existing relation of government expenditures and receipts, whether deficit or surplus, or for fiscal policy in periods of depression or inflation.

Some economists would dispense with any hard-and-fast rule or formula. They would vary total government revenue in relation to expenditure so as to exercise a stabilizing influence on the economy. They claim that it is not possible to say in advance whether such an approach would call for tremendous surpluses and public debt reduction in the years ahead or a predominance of deficit spending.

E. *Discretionary Stabilizing Action*

Some economists would place exclusive reliance on built-in stabilizers. They believe that these automatic stabilizers are very likely to reduce economic fluctuations to tolerable magnitudes; and they fear that discretionary government actions are likely to do more harm than good, owing to the defects of forecasting, the destabilizing influence of uncertainty about government action, and the political pressures to favor special interests. Most economists approve the greatest possible use of automatic stabilizers, but do not consider it prudent to rely solely on them. Hence they favor use of additional stabilizing measures if unemployment or inflation pass certain points.

The principal types of discretionary fiscal action for stabilization are: (1) changes in tax rates and tax structures; (2) changes in "transfer payments"; (3) changes in expenditure on public works; and (4) general expansion or contraction of government activities.

The stabilizing influence of the present federal tax structure could be increased by reducing tax rates during a slump in order to encourage business and family expenditure; and by raising tax rates when an excess of money expenditure is causing inflation. Tax exemptions could also be varied.

The same logic underlies proposals for increasing "transfer payments" in bad times: *e.g.*, increasing grants-in-aid by the federal government to help carry the local relief load. Some economists even go so far as to advocate that the government send checks to people broadside during times of mass unemployment. The possible abuses of such a program, and an aversion to giving people money they have not in some sense earned, explain the considerable skepticism toward this proposal and the wider approval of work relief as a means of providing incomes for those who cannot, for the time, be employed in private industry or on public works.

Shifts in the timing of construction of some public buildings, river improvements, power facilities, public housing, and the like, would do no great harm. The question is therefore raised whether such heavy public works cannot be hurried forward in case of a slump and slowed down in case of a boom, and thus used to temper economic fluctuations. In the past this sector of government expenditure has often behaved perversely, growing in prosperity and shrinking in slump. There would be widespread agreement among economists that the least that should be done is to correct this destabilizing tendency by a closer approach to regularization of government expenditure on heavy public works. State and local governments face real obstacles to such regularization of expenditure, but it may be possible to remove these in considerable degree by appropriate federal assistance programs or by other devices.

Some economists would go further and seek to increase heavy public works in depression and retard them in prosperity, particularly if the swings in economic activity should be fairly long in duration and substantial in amplitude. However, there seems to be a trend away from the earlier enthusiastic belief that this can go a long way, by itself, in stabilizing business activity. It takes so long to get public-works projects under way, even with a "shelf" planned ahead, that more accurate forecasting than we now have would be needed to guide the timing of such a program.

"Light" public works—road maintenance, earth-moving projects in relation to conservation and flood control, etc.—offer advantages in flexibility of expenditure and timing, and are regarded by many economists as an important part of a stabilization program.

Finally, the federal government could contract or expand the scope and scale of its activities. Few economists would favor the use of such changes to temper mild short-run fluctuations in economic activity. A larger number would use changes in the general level of government activities along with the other devices mentioned above to meet sharp or prolonged unemployment or inflation.

Whether discretionary action is to operate on public works and work relief expenditures, "transfer payments," or tax rates, or on the general level of government activities, two related problems must be solved: (1) Who is to have the authority to decide when action is to be taken and what kind of action is appropriate?; and (2) What criteria can and should this authority use in reaching its decisions? The second problem would be solved and the first would not be serious if we could forecast accurately for a considerable period ahead, since in that case it would make little difference where the authority was lodged. Different authorities would reach much the same decisions, and in any event, success or failure could be easily gauged and thus effective legislative control would be possible. The admitted impossibility of accurate forecasting makes both problems serious. Retention of authority by the legislature is almost certain to mean a substantial lag before action is taken. As a practical matter, the process of changing a tax law or expenditure program usually takes the Congress many months of hearings and debate. Moreover, each separate action is likely to become enmeshed in political controversy. On the other hand, delegation of authority means surrendering in some measure what have hitherto been exclusive prerogatives of the legislature and thus strengthens the executive arm of the government. It means, not the elimination of political pressures, but concentration of these pressures on an executive authority rather than on the legislature.

Difficulties of the sort just mentioned might be overcome in part by the device of advance enactment by Congress of statutes providing for changes in taxes, "transfer payments," or public works expenditures, and setting forth rules or standards for putting those programs into effect. For example, the law could provide that the withholding rate in the personal income tax be raised by a stated amount whenever an appropriate price index had risen by a certain amount in a defined period of months; and be lowered by a stated amount whenever standard indices of production and employment dropped below specified levels or trends. Again, the law could provide that the period during which unemployed workers could receive unemployment compensation be temporarily increased according to a standard index of the volume of unemployment. Another example is found in advance authorization for a specific program of public works, to be put into operation in accordance with changes in standard indices of production and employment and to be curtailed in accordance with changes in the same indices. Standards for application of these measures would have to be quite easily and widely understood. Congress could, if it desired, retain a "legislative veto" on the actual putting into effect of such programs. This device of advance enactment of stabilizing measures shades into the area of built-in, automatic stabilizers.

V. *Monetary Policy*

Monetary policy includes policies dealing with banking and credit—the availability of loans to firms and households, and interest rates—, the public debt and its management, and the monetary standard.

A. *Banking Policy*

Banking policy has for generations been held responsible for easing financial "panics." After the first World War the rather vague mandates of the Federal Reserve Act—"maintenance of sound credit conditions" and "accommodation of commerce, industry and agriculture"—came to be construed into a general concern with economic stability. During the "New Era" of the 1920's, there was a widespread impression that the policies of the Federal Reserve System were in fact achieving prosperity with steady prices. The breakdown of the "New Era" prosperity, the recurrence of a financial "panic" in 1933, and the incomplete business recovery after 1933 despite expansionist Federal Reserve policy, have raised doubts of the effectiveness of monetary policy as an instrument for maintaining economic stability. Few economists today would rely so heavily on monetary policy as was typical twenty years ago, but few would regard it as unimportant. Experience has shown that appropriate monetary policies can be helpful and that inappropriate policies can be harmful. Most economists agree on the following: (1) Tight money is a deterrent to price inflation accompanying a general excess of demand over supply; (2) Tight money can greatly accentuate a downswing of activity and may convert a mild depression into a deep one; and (3) Easy money by itself is an inadequate remedy for deep depressions, but it is helpful. Some economists think that easy money may be an adequate remedy for mild depressions, and that appropriate monetary policy may prevent mild depressions from becoming deep.

Looking ahead, there are two main lines of bank-credit policy on which to rely—qualitative controls regulating particular types of credit, and quantitative controls to produce a general tightening or easing of credit. Quantitative controls must be the main reliance, but the possibilities and limitations of qualitative controls need to be considered.

Qualitative Controls. Qualitative controls are measures designed to stimulate, restrict or stabilize loans for particular, specific purposes. Examples of stimulating controls are Federal Housing Authority insurance of mortgages and revision of bank examination standards designed to facilitate credit expansion through consumer loans and "term loans" to business. Such stimulative measures can scarcely be turned on and off on short notice, but may have their uses in case of persistent depression. The use of qualitative controls to reduce the fluctuation in bank credit is illustrated by the amendments of bank-examination standards in the late 1930's, aimed to encourage banks to judge loans and bond investments by their long-run prospects, and thus to make credit standards less cycle-sensitive. Restrictive qualitative controls are illustrated by the control of stock-exchange margins and of installment credit during and since the war.

Some opinion seems to favor primary reliance on qualitative controls in circumstances where inflationary pressures need to be checked by tight credit. Most economists are skeptical on this point, for several reasons. There seems to be no possibility of designing workable controls over loans to finance inventories, a type of loan which contributed to inflation in 1946-48, and probably in 1919-20. In general, when one type of bank credit is restricted, the activities it is hoped to restrict can usually be financed under some other label, thus evading the restriction. Further, qualitative controls necessarily affect only selected lines of activity and many economists think it undesirable that measures designed to control the general level of activity should favor or repress particular lines of activity.

Quantitative Controls. Control of the quantity of bank credit is operated through instruments affecting the reserves of the banks, since the ability of banks to make loans and investments depends on the amount of their reserves in relation to legal requirements. The reserves of the banks are their deposits in the Federal Reserve Banks. A bank cannot expand its loans or investments unless it is prepared to face a loss of reserves as borrowers, or sellers of securities, use the newly acquired funds. To expand credit, therefore, a bank must either have reserves in excess of the required minimum percentage of its deposits, or have ways to get additional reserve funds. A bank which runs short of reserves has to choose between borrowing from the Federal Reserve Bank or reversing the process of credit expansion and cutting down its outstanding loans and investments.

Policy actions by the Federal Reserve System or the United States Treasury can put the banks in an easy reserve position encouraging credit expansion, or a tight reserve position pushing them into credit contraction. The Board of Governors of the Federal Reserve System can, within limits fixed by statute, change the minimum ratio of reserves to deposits that each member bank in the System is legally required to hold. The Board can also change the "rediscount rate"—the cost to commercial banks of borrowing from the Federal Reserve Banks—though this instrument has been of little importance in recent years. The reserve position of the banks can also be altered by shifting the location of Treasury funds from commercial banks to Federal Reserve Banks, or vice versa. A shift of these funds into Federal Reserve Banks reduces deposits and reserves of commercial banks by equal amounts, thus lowering the percentage ratio of their reserves to their deposits.

The most powerful tool of monetary policy is "open market operations"—that is, the sale and purchase of government securities by the Federal Reserve or by the Treasury. A sale of securities by Federal Reserve Banks or by the Treasury results in a flow of checks from buyers to the Federal Reserve Banks. These are subtracted from the reserve accounts of commercial banks (*i.e.,* their deposits with the Reserve Banks), with the result that their reserves are lowered by the amount paid for the securities. In the other direction, a purchase of securities by a Federal Reserve Bank leads to issue of a check which, when collected by a bank from the Reserve Bank, adds directly to the reserve of that bank. The Federal Reserve buys and sells large amounts of securities every week, on its own account and as fiscal agent of the Treasury. If the net effect of these operations is an excess of sales over purchases, bank reserves are reduced. If the net effect is an excess of purchases over sales, bank reserves are expanded.

In the years 1946-48, the open-market power was used to support the prices of government securities. This limited its use to check credit expansion, since banks wishing to get more reserves could do so at will by selling such securities.

Experience suggests that quantitative monetary control is more effective in checking undesired credit expansion than in bringing about desired credit expansion. There is always a point at which shortage of reserves will curtail the growth of bank loans and investments. In the other direction, while expanding the reserves of commercial banks *permits* credit expansion, it cannot guarantee it—that depends also on the attitude of borrowers. In recession, the most that monetary policy can do may be to avoid adding credit deflation to the list of forces aiding the downswing. But if a prosperity period takes on an inflationary tinge, monetary policy has a clear responsibility to arrest credit expansion.

The destabilizing tendencies of banking could be reduced by setting higher reserve requirements. A 20 per cent reserve system, which is roughly what we have today cannot inflate itself nearly as far on a given volume of excess reserves, or deflate itself as far in paying off a given amount of bank debt to the Federal Reserve, as the 10 per cent reserve system which we had in the 1920's.

Some economists favor going all the way to a 100 per cent reserve banking system to minimize this source of instability. In this extreme form, the proposal would involve the complete separation of the depository and check-clearance functions of exisiting banks from their lending functions. The existing lending functions would be taken over by new institutions, many of which, it is expected, would be formed from loan departments of existing banks and all of which would obtain their funds from the flotation of securities rather than from deposits subject to recall on demand. Proponents of this scheme maintain that it would cure the destabilizing influences now built into our banking structure, facilitate control over the quantity of money by either automatic means or discretionary authorities, and avoid excessive government regulation of the lending market. Many economists doubt that this measure would make a significant contribution to economic stability, and feel that the transitional difficulties of such a drastic change would be great and that less drastic measures can put the banking system on a satisfactory footing.

B. *Public Debt Policy*

The national debt held outside government agencies and Federal Reserve Banks, now amounts to approximately $200 billion or about 90 per cent of a year's national income. (This compares with a national debt calculated on the same basis of about 50 per cent of national income in 1939.) Of the $200 billion, commercial banks hold about $65 billion and other credit institutions about $35 billion, leaving about $100 billion in the hands of individuals, corporations, and local governments. About $60 billion of the debt, including Savings Bonds, is redeemable on demand. Another $40 billion is composed of short-term Treasury securities. Interest charges on $200 billion of the debt in the hands of the public are about $4½ billion a year.

During and shortly after the war there was a standing offer by the Federal Reserve to buy government securities at stated prices. This policy made it impossible to check price inflation by tightening the bank reserve position significantly.

The standing offer of the Federal Reserve to buy government securities at stated prices rendered the large bank holdings of these securities the practical equivalent of excess legal reserves. Any bank that wanted to increase loans, or to buy investments could get reserves by selling part of its government securities to the Federal Reserve. Thus, public debt policy largely transformed the open market operations of the Federal Reserve System from a means of controlling bank credit to a means of supporting the prices of government securities and holding down interest rates.

The Federal Reserve authorities later substituted a somewhat more flexible policy of maintaining "orderly conditions" in the government security market in place of the wartime and early postwar policy of supporting government securities at stated prices. Although this new formula creates the possibility of using monetary controls as a contracyclical stabilizer, there is serious danger that excessive emphasis will be given to stabilization of government security prices.

Many economists advocate that the Federal Reserve abandon the price of government securities as a primary criterion of policy, and decide on the volume of government securities to purchase or sell on the basis of the desired tightness or ease in the money market.

Many other economists see serious drawbacks to this policy: (1) The budgetary cost might be large; (2) If such a policy resulted in disorderly conditions in the market for government securities, there might be serious repercussions on the solvency of our financial institutions—banks, insurance companies, etc.; (3) Moreover, a tightening of the structure of interest rates may take many years to reverse, so that unless the authorities can forecast with confidence that inflation will last a long time, these economists think that such a policy might do more harm than good.

Security-Reserve Possibilities. One method proposed for bringing the reserve position under control while protecting the market for government securities held by banks it to require banks to keep a reserve of government securities against deposits, in addition to present cash reserves. To be effective in controlling credit, such a requirement would have to tie down the bulk of the reserve-eligible government securities. Interest rates on other government securities would then be allowed to vary. Proposals of the Federal Reserve authorities for requirements stopping a good deal short of absorbing bank holdings might well leave banks such a wide margin of cashable securities as to be ineffective.

The security-reserve proposal was advocated during the active inflation of 1946-48 by the Board of Governors of the Federal Reserve System and by some private economists, as an emergency measure to check the inflation and as a contribution to permanent economic stabilization. In all essential respects, raising required reserve ratios by adding a security-reserve requirement is identical with a straight increase of cash reserve requirements, combined with an equivalent purchase of government securities by the Reserve Banks. The only significant difference is that the security-reserve proposal provides the member banks with the equivalent of a subsidy (in the form of interest on the bonds) to compensate for the loss of earnings on additional assets tied up as reserves. Like a straight increase in cash reserve requirements, it would reduce the possible ratio of credit expansion to excess reserves.

C. *The Monetary Standard*

The problem of monetary standards is ordinarily discussed in terms of gold. This is likely to be misleading. Gold has an importance in relation to international problems, but in relation to our domestic problems it is not very important. Our gold reserves are so enormous that maintaining the gold standard—that is, keeping gold at a price of $35 per ounce—can be no guarantee against inflation. Nor can the gold standard be any guarantee against deflation and unemployment, as may be seen from our experiences of the 1930's and earlier depressions. Moreover, attempts to manage the domestic economy by changing the gold price would be ineffective domestically and ruinous to our international relations.

Gold is a connecting link between domestic monetary policy and international problems. Currently the chief meaning of our standing offer to buy gold at $35 per ounce is that it creates a market for something produced in friendly countries we are trying to help, particularly sterling-area countries, and that it gives a value in American goods to the monetary reserves of our friends. However, political considerations aside, it is more straightforward and economical to make funds available to nations we seek to help in the form of open gifts than to buy gold we do not need and which they must use some of their resources to produce.

In a long-run view, most economists think it wasteful to produce gold destined only to be buried in our monetary hoards. Some urge the return to a situation in which gold plays an essential rôle in the monetary system, others, the complete elimination of the monetary rôle of gold. Many feel, however, that present international difficulties make this an inappropriate time to make a fundamental change in the rôle of gold.

One proposal for a reform of the monetary standard to promote economic stability is the commodity-reserve-currency plan ("Graham Plan"). This is a scheme for giving a stable real value to the dollar by having the government issue a standing offer to buy or sell, at a fixed price, a ***composite commodity-bundle*** of standardized and storable raw materials. The offer would be backed up on the buying side by the government's power to issue paper money, and by available storage facilities, and on the selling side by a reserve of commodities in storage.

The chief merit claimed for the commodity-reserve scheme is that it could be a powerful automatic stabilizer. In a recession, purchases for the commodity reserve would increase the quantity of money and check the decline in the incomes of raw-material producers and thus help also to maintain markets for goods used by these producers. In an inflationary boom, sale of commodities from the reserve would reduce the quantity of money, absorb excess spending power and add to available supplies of raw materials. This plan needs further exploration and appraisal before its practical potentialities will be clear, particularly with respect to the make-up of the "composite commodity" and its relation to farm and food policy, to international commodity agreements, and to monetary policies of other countries.

D. *The Relation between Fiscal and Monetary Policy*

To simplify exposition, fiscal and monetary policy have been treated separately, though they are in fact closely related and decisions about one will inevitably affect the other. Perhaps the point of most direct contact between monetary and fiscal policy is the financing of deficits and the use of surpluses.

We have seen that a stabilizing fiscal policy may call for a deficit at a time of large unemployment and for a surplus at a time of strong inflation. We have also seen that stabilizing monetary policy calls for relatively easy money at a time of large unemployment and for relatively tight money at a time of strong inflation. The two principles together require that a deficit designed to offset depressing influences be financed in a way that would contribute to monetary ease—for example, by the sale of securities to the Federal Reserve System or by the printing of currency. Similarly, the two principles require that a surplus designed to offset expansive influences be used in a way that would contribute to tight money—for example, by retiring securities owned by the Federal Reserve Banks or by destroying currency.

These simple principles have by no means always been followed. The most recent example is the policy of supporting government security prices in 1946-48, which meant that some of the restrictive effect of post-World-War II surpluses was dissipated. The combined effect of monetary and fiscal policy was in consequence to favor capital formation at the expense of consumption.

Coordination between fiscal and monetary policy is also required on a broader level: the two policies must work together and not at cross purposes. This raises broad issues, largely outside the scope of this report, about the appropriate administrative and political arrangements for the control of monetary and fiscal policies and about the standards employed to guide these policies.

In the past, fiscal policy has been directly governed by legislative action; whereas monetary policy has been largely at the discretion of the Federal Reserve System and the Treasury, though a considerable number of other agencies—the Federal Deposit Insurance Corporation, Reconstruction Finance Corporation, Federal Housing Authority, and so on—have exercised some monetary influence. Perhaps most economists feel that control over monetary policy is at present dispersed too widely to permit effective coordination. Some economists would favor concentrating control over monetary policy and adding discretionary control of fiscal policy. Others would favor reducing or eliminating the amount of discretion at present lodged in the monetary authorities —thereby placing major emphasis in both fiscal and monetary policy on essentially automatic reactions.

In the past, also, the standards for monetary action have been very vague and broad. Some economists would favor equally broad standards for governing fiscal policy. Others would favor the acceptance of a single set of more specific standards—such as stability of an index of prices or employment—to govern whatever discretionary action is authorized in both monetary and fiscal policy.

VI. *Some International Factors*

For many countries, the problem of domestic economic stability is greatly complicated by high dependence upon external trade. A country that exports a large fraction of its own production and relies heavily upon imports to meet its internal needs will necessarily be quite sensitive to external disturbances influencing its foreign trade. This sensitiveness to outside influences will be further enhanced if its reserves of gold and foreign exchange are small and its ability to obtain aid or credit abroad is limited. A decline in external demand for its export products, owing to depressed conditions in the chief markets to which it sells, imposes upon it the necessity of quickly bringing its external payments into line with its reduced receipts. This must usually be achieved in the main through curtailment of imports, and this by itself may interfere with domestic stability. At times something may be accomplished by improving the competitive position of exports. In this situation it is possible to avert serious internal deflation by resorting to currency depreciation, imposing direct restriction on imports, or subsidizing exports; but under some circumstances such measures may have other disadvantages, so that some internal deflation may be accepted as a consequence of the falling off in external demand for its goods. For such countries the task of adjusting the external balance at least complicates, and may conflict with, the achievement of domestic economic stability.

The United States is not in that position. Indeed, among economically advanced countries the United States is in an almost uniquely fortunate position. Our problem of domestic economic stability is not significantly affected by complicating external factors. This is not due solely to our huge gold reserves. Even more important are the facts that (1) our foreign trade is a relatively small part of our total activity, and (2) at the present time, other countries have such small reserves of gold and foreign exchange and are controlling their imports from the United States so closely through direct measures that any change in our purchases from them is likely to be reflected very rapidly and fully in a corresponding change in our exports. This means that in the event of a depression in the United States, we could not get any substantial over-all domestic stimulus by raising our barriers to imports. Hence, tarriffs and import restrictions cannot be an effective anti-depression measure for the United States.

Though our foreign trade is a relatively small fraction of our activity, our imports bulk large in the activity of a considerable number of other countries. This means that foreign countries have a large stake in stable prosperity in the United States and in a broadening of our market for imports. Our record of economic instability, combined with our traditional policy of tariff protection obviously makes them reluctant to link their economies too closely to ours. In the event of a serious depression here, other countries eager to avoid a repetition of the experience of the 'thirties, would probably unite in imposing specific restrictions against imports of American goods. The result would be a partial quarantining and isolation of the United States. The general objectives of our foreign policy make it essential that we encourage other democratic countries to adopt commercial policies which emphasize interdependence with, rather than insulation from, the United States. Our success on this score will depend, first and foremost, on our actual performance in achieving stable prosperity, and second, on our willingness to have low import duties, and to refrain from such other obstacles to imports as quotas and cumbersome customs procedure. Under present world conditions, the international political importance of our success, or failure, in achieving domestic economic stability can scarcely be overestimated.

Although our domestic economy is unlikely to experience serious disturbance from unpredictable and independent fluctuations in the foreign demand for American goods, our economy is subject to other important forces from abroad. The size of our programs of foreign economic and military aid and of government-fostered private investment abroad must be based mainly on our assessment of world conditions and the requirements of foreign policy, without much reference to considerations of domestic stability. It is the task of domestic stabilization policy to compensate for unstabilizing variations in the size of those programs, as well as in our military expenditures. A worsening of the international situation, resulting in very heavy expenditures for these purposes, might confront us with as difficult a problem of controlling inflation as in wartime. Improvement in the international situation might, on the other hand, permit a sharp curtailment of military expenditures at home and military aid to others. In this event, tax reductions could go far to forestall any deflationary effect.

Although the present U.S. position permits us a wide range of freedom in choosing domestic policies, even this freedom is not complete. And in any case, we must realize when we choose between alternative stabilization programs that they have definite international implications.

VII. *Market Policy*[1]

Wise use of the instruments of fiscal and monetary control is essential to economic stability, but there is no assurance that, under all circumstances, economic stability will be achieved through such controls alone. In a free-enterprise economy private policies of business and labor with respect to prices, wages and profits have a bearing

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[1] Milton Friedman makes the following comment on this section:

"I disagree with the general tenor of this section and one of its major specific conclusions.

"(1) Market policy seems to me to stand in an entirely different relation to economic stability than monetary and fiscal policy. Monetary and fiscal measures are general measures adapted to the problem of countering general changes in employment, output, and prices and are the appropriate techniques to use for that purpose. Changes in particular prices and particular wages are appropriate for achieving a proper allocation of resources and products among different uses; they are entirely inappropriate for countering general changes in employment, output, and prices.

"The chief reason for considering market policy at all in a report on economic instability is that inappropriate market policy—a market policy that enables special groups, whether trade unions, industrial producers, or farmers, to exercise direct control over prices or wages—may render monetary and fiscal policy largely ineffective in attaining its twin objectives of full employment and stable prices, a point that this section quite appropriately makes. The solution is to be sought in the elimination of these direct controls, not in their extension or in the substitution of governmental controls. The problem is not what behavior ought to be imposed on particular prices or wage rates but rather, what the appropriate institutional arrangements are for the determination of prices, wage rates, etc.—the problem considered in the three paragraphs that precede the final paragraph of this section.

"(2) One of the chief specific conclusions of this section is that prices of products and wages of labor require different treatment for the promotion of economic stability; that it is desirable for the general level of product prices to fluctuate over the business upon stability, and the same is true of government policies affecting prices and incomes in particular industries, such as agriculture, transportation and public utilities.

This raises two fundamental questions. First, how should prices, wages and profits behave? Second, what steps should be taken so that prices, wages and profits will behave as they should? Since economists have not yet made much progress in analysing the effects on business fluctuations of price, wage and profit behavior, no comprehensive and precise answer can be given to the first question. And as one might guess, there are widely divergent views on both questions.

The power of organized labor today suggests that we may be faced with the danger of chronic inflation resulting from general wage increases which recurrently outrun the growth in productivity of the economy as a whole. Man-hour productivity for the economy as a whole has increased in the past at an average rate of about 2 per cent per year. A gradual upward trend in average hourly wage rates corresponding approximately to this general growth in productivity—*i.e.*, an increase of about 2 per cent a year, if past trends continue—need not result in an upward trend in the average level of prices. But general increases in wage rates exceeding the average growth of productivity raise costs and will ordinarily result in higher prices.

Chronic wage-induced price inflation would pose a dilemma for fiscal and monetary policy. Suppose wages rise at a rate of 10 per cent per year and prices by 7 or 8 per cent. Should we then adopt tight money and a budget surplus to meet this situation? If we do, the result will be not so much control of prices as a reduction of output and employment: business costs and prices will still be high but total money demand will be deficient so that men and machines will have to become unemployed. If we do not, we face the danger that the wage and price

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cycle but undesirable for the general level of wage rates to do so (paragraphs 8, 9, and 11 of this section). This seems to me false. Prices of products and wages of labor are on the same footing. Our basic objective is to minimize the fluctuations in both. Insofar as the conclusion of this section goes beyond this statement, it necessarily implies substituting rigidity for stability. When a decline in total money demand presses prices and wages down, the wage level can be kept stable only by preventing particular wage rates from falling.

"If fiscal and monetary policy prevent total money demand from falling or rising sharply, they will thereby prevent any general decline or rise in wages and prices from developing into a spiral and becoming cumulative. Declines or rises in particular prices and wage rates can then serve the useful and indispensable function of facilitating adjustments among different sections of the economy. 'The growing strength of organized labor' is, from this point of view, as harmful in periods of business contraction as in periods of business expansion (see paragraph 8 of this section). The alternative solution of a rigid wage level proposed in this section is equivalent to saying that the appropriate way to reduce temperature fluctuations in a room is to break the thermometer which controls the thermostat so it always registers the same temperature."

increases will continue at a rate that becomes intolerable. Thus, inflation induced by rising costs rather than excess demand offers a very grave dilemma for fiscal and monetary policy.

Opinions of economists differ regarding the likelihood that these problems will be serious. And suggestions for a solution tend to be impractical or rather general and vague. Direct governmental control of wages is incompatible with a free-enterprise economy. Even proposals for compulsory arbitration of wage disputes are opposed by both unions and employers, and there are as yet no agreed principles of income distribution policy that might establish a basis for arbitration. Limited statutory restraints upon the right to strike are unlikely to curtail seriously the bargaining strength of labor organizations. Adoption by labor leaders of a more responsible attitude on wage increases, taking account of the full effects on the economy as a whole, may be impossible unless inter-union competition becomes weaker and economic understanding of the rank and file, as well as the leaders, becomes greater. For the present, reconciling full employment with price level stability within a free-enterprise framework must be regarded as a major unsolved problem.

It should be emphasized that the relationship, noted above, between growth of productivity and increase in wage rates does not hold for a particular firm or industry. Productivity does not grow uniformly or evenly among industries and firms; the differences in rates of productivity increase are often great. If wage rates in each particular industry or firm were adjusted to the productivity change in that firm or industry, untenable disparities would develop in the wages paid by different industries for the same kind of labor. Instead, wage rates for a particular grade of labor should be approximately uniform throughout all sectors of the economy, except for regional differentials reflecting basic differences. Divergent rates of growth in productivity in particular industries should, in general, be reflected in shifts in the relative prices of their products, involving price reductions in those fields experiencing above-average progress and price increases in those fields where growth in productivity is lagging.

An average increase of about 2 per cent per year in the level of money wage rates does not, however, imply just this rate of increase for each worker or each grade of labor. Existing anomalies in the wage structure are continually being corrected. Also, progress in equalizing educational and training opportunities and in removing discriminatory barriers to entry into the more agreeable and highly paid occupations should result in narrowing somewhat the wage differentials between menial, unskilled jobs and skilled jobs through increases in rates at the lower end of the wage structure. Again, the faster-growing firms and industries may need to raise wages a little faster in order to attract labor. These factors will at times justify increases in particular wage rates of more than 2 per cent per year.

A downward spiral of wages and prices is at least as harmful to economic stability as an upward spiral. General wage cuts are likely to be unstabilizing; they may help to convert a moderate business recession into a severe depression. If such cuts are not accompanied by equivalent reductions in consumer prices, they depress business by reducing the buying power of workers. If, on the other hand, prices are promptly adjusted, the decline in wages and prices together, coming in a period of business contraction, is likely to give rise to expectations of further reductions, producing general postponement of buying, efforts to liquidate inventories, losses, pressure on borrowers to repay, and serious financial difficulties and deflation. The growing strength of organized labor, while it has increased the likelihood that an inflationary wage-price spiral will develop in periods of business expansion, has much reduced the danger that future periods of business contraction will be intensified by deflationary wage-price spirals, such as occurred in the early 'thirties.

Stability of the wage level does not imply that the level of prices must remain rigid; profit margins can and should vary through the cycle.

In a dynamic economy stable prosperity calls for a continuous readaptation and redirection of productive effort in response to the development of new products, new techniques of production and changing wants. In a free-enterprise economy this kind of dynamic adjustment requires willingness to adjust prices, and sometimes capacity, promptly to changed conditions of demand or supply. Marked stickiness or rigidity of particular prices may be an important factor impeding dynamic adjustment and contributing to over-all economic instability. Attempts to achieve monopoly profits by limiting output and keeping prices high tend to reduce the buying power of consumers. Some economists think that monopolistic action may prevent new investment.

General conclusions are that cumulative wage-price spirals destroy economic stability, and that the task of maintaining stable prosperity will be greatly assisted if a way can be found to combine a steady and gradual upward trend in money wage rates, corresponding to the average over-all growth in productivity, with a considerable degree of flexibility in the prices of particular goods. It is all too evident that the actual behavior of wages and prices does not correspond to this ideal. The tendency of union wages to rise excessively during periods of business expansion, and the tendency of many prices to remain fixed, or decline only sluggishly, in periods of business contraction are obstacles to economic stability. They may put an impracticable burden upon fiscal and monetary policies. There is disagreement among economists, however, on both the magnitude of these problems and the measures which should be taken to meet them.

According to one view, the government should adopt a positive, sweeping program to remove barriers to competition, so that no business corporation and no labor union would have the power to exert any significant influence over the prices of whatever it sells or buys. Prices, wages and profits would then be determined by the automatic operation of competitive markets. In those industries where economies of mass production or other factors limit the firms to such a small number that competition is not effective, government ownership or regulation would replace free, private enterprise. This approach calls for a destruction of private power over wages and prices, but with no extension of government power except where effective competition is unattainable.

According to another view, the government, instead of relying primarily on measures to enforce competition, would establish selective price and wage controls and rationing and allocation procedures in key sectors of the economy, thus securing a substantial measure of influence over the behavior of prices, wages and profits. This approach calls for a curtailment of private power, and an extension of governmental power, over both prices and wages.

According to a third view, powerful private groups, such as large corporations and labor unions, must be accepted as an inherent feature of our kind of society. Instead of undertaking extensive government controls over wages and prices, however, an attempt should be made to formulate rules of responsible private behavior for organized groups, and to secure the voluntary acceptance by these groups of such rules. This approach emphasizes not the curtailment of private power, but its responsible exercise in conformity with accepted rules. It raises the fundamental question whether private groups can satisfactorily discharge public functions. This view does not, of course, rule out attempts to make competition as effective as possible everywhere, or substitution of public ownership and operation in highly monopolistic industries.

This diversity of views and programs is significant in indicating that the problem of prices, wages and profits is as yet largely unsolved. Difficulties in this field should not, however, prevent us from using fiscal and monetary controls to do the best we can in limiting fluctuations in total income, expenditure, production, and employment.

THE NATURE OF THE SUPPLY FUNCTION FOR AGRICULTURAL PRODUCTS

By D. GALE JOHNSON*

It is generally believed that the total output of farm products responds little if at all to changes in the average price of farm products. For example, most farmers believe this to be true for downward movements in real prices; the willingness of farmers and their representatives to accept direct control of output and marketing clearly reflects their belief that downward movements in real prices will not substantially reduce farm output. Though this belief is apparently based on the depression experiences of 1919-22 and 1929-33, it is applied without hesitation to a period when resources are generally fully employed.[1]

The best published discussion of the responsiveness of agricultural output to price changes is by Professors Galbraith and Black.[2] Their analysis is restricted to depression conditions and lacks preciseness largely because it fails to distinguish between those conditions relevant to the decision process within firms and those relevant to the nature of the factor markets, *i.e.*, the supply conditions of factors. No systematic attempt has been made, to my knowledge, to make a similar analysis for non-depression conditions.

This paper attempts to fill these gaps by analyzing the reaction of aggregate output (1) to falling relative prices under depression conditions and (2) to changing relative prices when resources are fully employed in the economy. These two sets of conditions are chosen to simplify the discussion and because they represent the important empirical conditions.

I. *Agricultural Output During a Depression*

Aggregate farm output has repeatedly failed to decline during depressions. Numeous explanations have been offered for this phenomenon; such as high fixed costs in agriculture, the length of the production process, and the competitive structure of agriculture. Several such explanations are reviewed and analyzed in this section and an attempt is then made to outline a more general explanation.

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[1] See Secretary of Agriculture Brannan's *Statement before a Subcommittee of the Committee on Agriculture and Forestry, U. S. Senate, Eighty-First Congress, First Session, on S. 1882 and S. 1971 (July 7, 11, 12, 13, 14, 15, 18, and 19, 1949)*, pp. 50-52.

[2] See J. K. Galbraith and J. D. Black, "The Maintenance of Agricultural Production during Depression: The Explanations Reviewed," *Jour. Pol. Econ.*, Vol. XLVI (June, 1938), pp. 305-23.

A. *The Facts*

Much of the evidence usually presented on the behavior of agricultural output has been interpreted as indicating that agriculture's output response during major cyclical declines is peculiar to it. Table I presents data of the type usually considered rather conclusive. In 1933, agricultural output was only 6 per cent below its 1929 level, and that decline was in substantial part due to poor weather in the Great Plains area. In 1932, farm output was actually higher than in 1929. Manufacturing output as a whole declined by more than a third, while iron and steel output declined by 70 per cent and machinery, by 60 per cent.

But any theory explaining agriculture's behavior must also be consistent with another set of facts, namely that there were other impor-

TABLE I.—INDEXES OF PRODUCTION FOR AGRICULTURE, MANUFACTURING, AND MINING, 1927 TO 1947
(1935–39=100)

Year	Agricultural Output	Manufacturing	Durable Manufacturing	Non-Durable Manufacturing	Iron and Steel	Machinery	Mining
1927	95	94	107	83	108	99	97
28	99	99	117	85	121	106	95
29	97	110	132	93	133	130	103
30	95	90	98	84	97	100	91
31	104	75	67	79	61	66	82
32	101	57	41	70	32	43	72
33	93	68	54	79	54	50	80
34	79	74	65	81	61	69	83
35	96	87	83	90	81	83	89
36	85	104	108	100	114	105	99
37	108	113	122	106	123	126	109
38	105	87	78	95	68	82	99
39	106	109	109	109	114	104	105
40	109	126	139	115	147	136	114
41	114	168	201	142	186	221	122
42	128	212	279	158	199	340	125
43	125	258	360	176	208	443	132
44	130	252	353	171	206	439	145
45	129	214	274	166	183	343	143
46	133	177	192	165	150	240	142

Source: *Statistical Abstract, 1947*, p. 816 and *Agricultural Statistics, 1947*, p. 533.

tant segments in the economy which produced almost as much in 1932 and 1933 as in 1929. The following tabulation shows 1933 annual output as a percentage of 1929 output:[3]

Meat packing	95
Shortening	98
Canned milk	98
Cheese	95
Butter	110
Cotton goods	87
Woolen and worsted goods	87
Knit goods	100
Shoes, leather	94
Beet sugar	151
Canned fruits and vegetables	88
Clothing, women's	91
Soap	98
Petroleum refining	86

Employment in agriculture in 1929 was 8,323,000 family workers and 2,984,000 hired workers; in 1933, 8,590,000 and 2,433,000, respectively. Total employment declined roughly two per cent, from 11,289,000 to 11,023,000. Employment in manufacturing as a whole declined by 30-35 per cent and employment in certain types of manufacturing (automobiles, for example) by more than 40 per cent and hours worked, by even more. On the other hand, employment in food manufacturing declined only 15 per cent from 1929 to 1932 and rose from 1932 to 1933.

B. *A Review of the Explanations*

Roughly a half-dozen explanations of the cyclical behavior of agricultural output have been put forward. This section examines each of them; the next presents a general theory constructed to explain those characteristics of agricultural output under discussion.

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[3] Source: Solomon Fabricant, *The Output of Manufacturing Industries, 1899-1937* (New York, National Bureau of Economic Research, 1940). The reader may object that output behavior of the manufacturing groups included in the tabulation do not support the statement that output in some segments of the economy behaved much the same as agricultural output. Each of the industries, excepting the last, process an agricultural product and since agricultural output did not decline, it seems evident at once that the output of the specified processing groups would not decline. The output behavior of the processing groups can be explained by the same theory developed below, namely by the shifting of the supply functions of factors or by the price inelasticity of the supply functions for one or more of the factors. Inspection of the list will disclose several industries for which the cost of the agricultural raw material represents only a small fraction (less than a fifth) of the total manufacturing cost. In these instances, the supply prices of other factors declined sufficiently to permit the firms to maintain output.

1. *High fixed costs.* The belief that high fixed costs are responsible for the failure of farmers to reduce output during a depression has achieved more general acceptance than any other explanation.

It is generally argued that farm firms have high fixed costs because the labor supply is so closely related to the firm. Labor is viewed as a resource that is fixed to the firm because the operator and family members constitute roughly three-fourths of total farm workers. The same considerations are frequently alleged to apply to land.

This argument seems invalid. The employment of hired labor in agriculture is almost as constant as family employment.[4] Yet hired labor is certainly not considered a fixed resource by the firm. Hired workers are apparently willing to offer their services at prices which the firms believe are no higher than the value of the marginal product and so continue to be employed.

In many cases, the land operated is one of the assets of a firm in the sense that the firm owns the land. Most farm firms have the alternative of renting the land to another firm to operate, even during a depression. Only in the exceptional case would such an alternative not be available. Even if farmers who own land are unwilling to consider this alternative, the behavior of firms renting land cannot be explained by treating land as a fixed cost. There was roughly as much land rented during the 'thirties as was owned by the farm firms. Presumably operators continued to use the land because the price of land fell enough to equalize demand and supply at a level of "full" employment.

Table II is pertinent to the present argument. It indicates changes in gross income, net operator income, and production expenses from 1929 to 1932. Most of the changes in expenditures are due to changes in prices rather than quantities.[5] Net operator income represents the returns to all resources owned or controlled by the operator, including labor, land, and capital. Of the total production expenses, only taxes and farm mortgage interest would have continued to be claims on current income even if no output had been planned. These two items represented, in 1929, only 15 per cent of total production expenses and only 9 per cent of the value of gross output.

Even if one were willing to assume that labor is a fixed cost to the farm firm, nothing is gained by so doing. High fixed costs are not an adequate explanation of the relative stability of hired labor employment nor of the constancy of the amount of land rented. Nor can one, on this basis, explain the constancy of the output of livestock products,

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[4] Between 1929 and 1933, hired labor employment declined by 15 per cent, but an unknown fraction of this decline was due to the shift from the hired to the unpaid family labor category.

[5] See below, pages 550-51.

TABLE II.—EXPENSES OF FARM PRODUCTION AND FARM INCOME
(millions of dollars)

	1929	1932	1947
Gross income	13,824	6,406	34,705
Net operator income	5,654	1,715	17,087
Total production expenses	8,170	4,691	17,618
Feed purchased	919	348	3,783
Livestock purchased	461	164	1,302
Fertilizer and lime	293	125	685
Operating motor vehicles	509	384	1,505
Hired labor	1,284	584	2,791
Miscellaneous current expenses[a]	1,146	814	1,768
Taxes	641	504	705
Farm mortage interest	582	534	222
Rent (net)[b]	1,062	343	2,300
Depreciation[c]	1,273	890	2,579

[a] Includes such items as electricity, twine, ginning fees, dairy supplies, seeds, containers, etc.

[b] Gross rents were as follows: 1929—$1,621,474,000; 1932—$668,935,000; and 1947—$3,100,000,000. About the same amount of land was rented in 1932 as in 1929, while perhaps ten per cent less was rented in 1947.

[c] Gross investment: 1929—$1,414,000,000; 1932—$290,000,000; 1947—$3,682,000,000.

Source: Department of Agriculture, Bureau of Agricultural Economics, *Net Farm Income and Parity Summary 1919–41* (mimeo.) and *Farm Income Situation, August-September, 1948.*

particularly hogs. Farm management studies indicate that 75 per cent of the average cost of producing hogs is feed cost. Hog output is maintained only because feed prices fall, and fall as much or more than hog prices during the downswing of a major depression.

The constant employment of factors apparently reflects not high fixed costs but either (a) inelastic supply curves together with highly flexible factor prices or (b) changes in the marginal opportunity costs of the factors with the business cycle. The first explanation is pertinent to physical capital assets and land; the second to labor, feed, and livestock. Since most feeds are durable, why do feed prices fall low enough during a depression to clear the market of all of the current output? Given existing cost conditions during a depression, farmers are maximizing their position by producing crops, but they have the alternatives of feeding or storing the feed crops in anticipation of higher prices later. In this way, livestock output could be contracted during depression. Constancy of output of livestock implies that the supply curve of feed grains for current use has shifted far to the right. I shall consider this point later.

2. *Farmers try to offset lower prices by increased output.* The explanation that agricultural output is maintained (or even increased) by farmers as a means of offsetting lower prices may have a certain

validity. Over certain ranges, the supply curve of operator and unpaid family labor may be backward sloping; *i.e.*, individuals work more at a lower than a higher wage. This statement implies that as income falls, the marginal utility of income increases relative to the marginal utility of leisure. Since the employment of some inputs do decline during a depression because their prices are not as flexible as product prices, farm output is probably maintained by a small increase in the quantity of labor supplied by a given number of workers.

3. *Subsistence production is important in agriculture.* If production is largely for the consumption of the operator family and few of the inputs are purchased, relative prices have little effect upon the firm under any circumstances. Production decisions will be based largely on resources owned or controlled (mostly land and labor), and consumption preferences.

In 1939, about one-quarter of all farms had household use as the major source of income, and in 1944, roughly 22 per cent.[6] These farms produced less than four per cent of the total farm output in 1944.[7] Roughly three-quarters of what was produced on these self-sufficient farms was consumed in the household. In 1944, the rest of the farm operators consumed only about eight per cent of what they produced.[8] Consequently, the production of the bulk of the agricultural output is so commercialized that constancy of subsistence production cannot explain constancy of aggregate production.

4. *Technological factors inhibit response to price changes.* The production process in agriculture is relatively long. Consequently, a decline in prices may not be followed at once by a reduction in output. Farmers will find it advantageous to complete the production process as long as price equals or exceeds the marginal cost of completing the production process as of any moment of time. This explanation can apply only to cycles of short duration when prices fall for a year or eighteen months and then start to increase. It cannot apply to the 1929 to 1933 downswing. Here farmers did have time to change their production plans and yet failed to do so.

5. *Agriculture has a more competitive structure than the rest of the economy.* The belief that agricultural output is maintained during depressions because agriculture is competitive is strongly held in many quarters. The belief that output in many sectors of the nonfarm economy is highly variable during a business cycle because of enterprise monopoly is also strongly held.

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[6] *United States Census of Agriculture, 1945.* Volume II, *General Report,* Chap. X, Table 4. Data based on 1945 classification by type of farm.

[7] *Ibid.*, Chap. X, Table 26.

[8] *Ibid.*

The data on page 541 suggest that monopoly by no means always leads to large output variations during a business cycle. By measures ordinarily used to measure degree of concentration (percentage of output controlled by a few firms), canned milk, meat packing, soap, and beet sugar are rather non-competitive; the rest of the industries, relatively competitive. Yet all had highly stable output.

In addition, it should be noted that several competitive industries produced much smaller outputs in 1933 than in 1929. Among these were all branches of mining and lumber and most products of lumber.[9]

An enterprise monopolist would restrict output and maintain prices during a depression in two sets of circumstances. First, if the supply functions for all factors were perfectly elastic *and* if the supply functions did not shift from the peak to the trough of the business cycle. In these circumstances the monopolist would find it in its interest to maintain prices in the face of declining demand.[10] Without knowing the exact nature of the shift in demand, it cannot be said with certainty that no price change would occur but it is reasonable to assume that the change in price would be relatively small and most of the adjustment would be in output.

A competitive industry in the same circumstances would react in the same fashion. Since marginal cost did not decline, price could not fall for any period of time.

Second, an enterprise monopolist producing a durable product would be more likely to maintain prices during a depression if it believed that an extra unit sold during a depression at a lower price would otherwise be sold later at a higher price during the subsequent prosperity. A policy such as this is not without costs and it is by no means certain that if such a monopolist realized lower marginal costs during the depression that it would maintain prices at the pre-depression level. A competitive industry producing a similar product with the same demand relationship in time would not react as the monopolist does for obvious reasons.

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[9] See Solomon Fabricant, *The Output of Manufacturing Industries, 1899-1937,* Appendix B and Harold Barger and Sam H. Schurr, *The Mining Industries, 1899-1939,* Appendix A. (New York, National Bureau of Economic Research, 1944). Walter F. Crowder summarized an analysis of the output behavior of 407 products from 1929 to 1933 and 1933 to 1937. He concluded as follows: "If eight or ten products which decreased more than 90 per cent are not given undue weight, the logical inference would seem to be that the changes in quantity output of the great mass of manufactured products between 1929 and 1933 were not related to the concentration ratios of the products." For the 1933-37 period, he stated, ". . . it cannot be said that manufactured products in the 'low' concentration group exhibit any outstandingly different behavior pattern from that of products in the 'high' concentration group." (T.N.E.C. Monograph No. 27, *The Structure of Industry,* pp. 350-51 and 354.)

[10] This seems to be the assumption made by several writers who have discussed the relation between enterprise monopoly and cyclical price rigidity. Boulding, for example, assumed a relatively flat marginal cost curve and then argued that a decline in demand during a downturn of the business cycle would lead to price maintenance and output restriction. This explanation fails to indicate why the marginal cost curve does not shift during the cycle. If the cost curve shifted downward, regardless of how flat it is, price would be permitted to fall unless the demand curve shifted in a very peculiar manner. (See Kenneth Boulding, *Economic Analysis* [New York, Harper and Bros., 1948, 2nd ed.] p. 557.) For an analysis similar to that contained in this paper, see T. De Scitovszky, "Prices under Monopoly and Competition," *Jour. Pol. Econ.,* Vol. XLIX (Oct., 1941), pp. 663-86.

The degree of competition in the factor markets is probably more important than the degree of competition in the product market in explaining output response during a depression. It would be difficult to distinguish between the price and output behavior during a depression of an enterprise monopolist that buys factors in a competitive market and a competitive firm. Food processors did not contract output because the supply functions for at least one important factor, farm products, shifted and the factor price fell sharply. The output behavior of the firms did not seem to have been affected by the extent of monopoly and one should not have expected that it would be.

But if the factor markets are not competitive and the supply functions for the factors do not shift during the depression, both an enterprise monopolist and a competitive firm would be unable to maintain output if demand for the product declined.

The important unanswered question about price and output reactions during the 1929-33 depression is found in the urban labor market, why the hourly earnings of production workers in manufacturing declined so little (from $0.566 in 1929 to $0.442 in 1933) despite the drastic decline in employment.[11] Unions were not then sufficiently important in manufacturing to have had much influence. Given the small decline in wages, manufacturing industries which did not use an important factor or input having a flexible price could not react in the same way as agriculture.

6. *Summary of the explanation.* Most of the preceding explanations of the difference between the behavior of output in agriculture and in non-agriculture must be rejected. High fixed costs, the importance of subsistence production, technological conditions are clearly invalid explanations. The differences in the competitive structure of agriculture and industry in the degree of enterprise monopoly is a superficially more plausible explanation, yet I believe it, too, is invalid. An enterprise monopoly faced with the same factor supply conditions as agriculture would, in my view, react in much the same way as a competitive firm.

The belief that farm workers may work harder during periods of low income cannot be rejected on the basis of existing data, and this hypothesis is consistent with actual behavior.

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[11] Farm wage rates declined by more than 50 per cent in the same period. See *Statistical Abstract, 1947*, pp. 199 and 210.

C. *A Possible Theory*

Any theory purporting to explain the constancy of agricultural output during a depression should explain also similar behavior in the rest of the economy; it should be consistent also with the fact that agricultural output increases when the relative price of agricultural products increases and that farmers shift from one product to another as the relative prices of different products vary.

It is my view that a theory meeting these requirements is provided by the usual economic analysis of farmers as profit-maximizing entrepreneurs and that the special characteristics of the behavior of agricultural output can be explained by the characteristics of the supply functions of factors to agricultural firms.

The supply function for agricultural products is sometimes expressed as a simple relation between the quantity of output and the price of the output. However, the use of this relation obscures the complexity of the supply process determining the supply of agricultural products. The supply of agricultural products depends on: (1) Production conditions—the technological relations between inputs and outputs; (2) Supply conditions of the factors of production; (3) Price or demand conditions for output; and (4) The behavior of firms, including the objective of the entrepreneur.

The explanations provided in this paper of the behavior of agricultural output assume that firms maximize profits and that the demand for factors of production is determined solely on this basis unless a contrary assumption is made. The assumption of profit maximization implies that output behavior will be determined by the relationship between output and factor prices. For example, a greater relative increase in product than factor prices will result in increased output, and vice versa. Further, a rise in the price of one factor relative to another will decrease the employment of the first factor relative to the second. It is not necessary for our purposes that farmers actually maximize profits, but it is important, of course, that reliable predictions can be made by using the assumption of profit maximization.

Attention must be given to the supply conditions for the factors of production. These are spelled out in some detail at the relevant points in this article, but some comment on the labor supply function is required at this point. It is assumed that there is a labor supply function including all farm labor. To do this requires a strict separation of the farm firm and the labor function of the operator and other family members. This separation is required if confusion is to be avoided.

A firm is a business unit under single control within which productive resources are combined in order to produce goods and services for sale and use as a means of achieving some objective. A firm may consist solely of entrepreneurship, a business opportunity, and liquid capital. The farm operator is both an entrepreneur and a laborer. He accepts this dual rôle in the belief that he can thereby achieve a larger return from his energies. Otherwise, he would forego his entrepreneurial activities and hire out as a laborer. Analytically, we can divorce the supply of labor by the operator and his family to the farm firm from the farm firm itself, *i.e.*, we need not assume that this labor is a part of the firm.

During a depression, the supply function of land for use in agriculture has a price elasticity of nearly zero for a period of five to ten years. The response in quantity supplied following a price decline is related to disinvestment in land and failure to provide for maintenance. The supply function for capital equipment—to agriculture as a whole—is very inelastic whenever the demand price is below the price of new equipment. The supply function is then related solely to the existing supply of old equipment. Since such equipment does not have alternative uses outside of agriculture, there is no reservation price above the depreciation cost. Since this cost can be postponed, it may not represent an effective lower limit. The supply function of labor shifts with the level of income and employment in the rest of the economy. The marginal opportunity cost of labor falls rapidly as unemployment increases and rises similarly as unemployment declines. As the marginal opportunity cost approaches zero, the supply curve for agricultural labor becomes very inelastic. Farm workers are willing to accept lower rates of pay rather than be unemployed.

These conditions of supply would mean that during a major prolonged decline in business activity that (1) farm prices, farm wage rates, and land rents would fall in about the same proportion and (2) the employment of land, labor, and machinery would not change appreciably. Condition (2) might prevail without (1) if the resources had to be used in fixed proportions or if one of the resources had a fixed coefficient of production, conditions that seem less plausible than the conditions of supply outlined above.

Tables III and IV are not inconsistent with the above conclusions, except for the behavior of wage rates between 1919 and 1921. In part, this is explained by the fact that the peak in prices received came in May, 1920; the minimum, in June, 1921. Actually, no serious drop in farm prices came until the 1920 harvest, after wage bargains had largely been made.

TABLE III.—CROPS PLANTED, LABOR EMPLOYED AND POWER AND MACHINERY USED ON FARMS AND RELATIVE FARM PRICES, 1919-39

Year	Crops Planted[a] (in millions)	Labor Employment[b]		Power and Machinery[c]	Relative Farm Prices[d]
		Total (in millions)	Hired (in millions)		
1919	363	11.1	2.78	468	112
20	359	11.4	2.88	477	121
21	358	11.4	2.90	505	88
22	354	11.4	2.92	496	85
23	353	11.4	2.89	454	101
24	353	11.4	2.87	455	101
25	364	11.4	2.97	458	106
26	359	11.5	3.03	460	100
27	358	11.3	2.95	463	99
28	367	11.4	2.96	463	102
29	363	11.3	2.98	466	101
30	368	11.2	2.85	471	106
31	372	11.2	2.69	468	73
32	376	11.1	2.50	452	62
33	372	11.0	2.43	416	67
34	339	10.9	2.33	391	73
35	360	11.1	2.43	389	86
36	360	11.0	2.56	391	91
37	364	10.9	2.63	403	90
38	356	10.8	2.62	419	78
39	344	10.7	2.60	428	78

[a] 1924–1939, *Agricultural Statistics, 1940*, p. 542. 1919–23, estimate by the author.

[b] Department of Agriculture, Bureau of Agricultural Economics, *Farm Wage Rates, Farm Employment, and Related Data, 1943*, p. 155.

[c] Martin R. Cooper, Glen T. Barton, and Albert P. Bradell, *Progress of Farm Mechanization*, Dept. of Agriculture Misc. Pub. No. 630 (1947), p. 81. An index number with volume measured in terms of 1935–39 average dollars, 1870 = 100.

[d] Calculated from *Agricultural Statistics, 1945*, pp. 430–31. Based on ratio of prices received by farmers to wholesale prices of all commodities. Index equals 100 in 1910–14.

The 1920-22 depression did not result in any significant decrease in crop acres planted; labor employment was roughly constant, employment of power and machinery increased slightly. Absolute farm prices fell by 42 per cent between 1919 and 1921, and relative farm-nonfarm prices by 22 per cent. Because of the shortness of the time period, the 1920-22 depression cannot be considered as good a verification of our hypotheses as one might like.

The 1930-33 depression is a much better test. The period was four years; sufficiently long to permit farmers to revise their production plans completely. For employment of resources, the experience and hypotheses match very well. Acres planted may have increased slightly, total labor employment remained almost constant (decreasing only three per cent), while hired labor employment declined by about 15 per cent. Part of this decline resulted from a shift for workers related to the employer from the hired to the unpaid category.

As shown in Table IV, prices received and rent paid moved down together from 1929 to 1932 and 1933, with rent falling slightly more than prices.[12] In the absence of an important change in the marginal physical productivity of land, the employment of land would not have been expected to decline, and it did not do so.

TABLE IV.—FARM PRICES AND WAGE RATES, FARM WAGES AND RENTS PAID, AND CASH FARM INCOME, 1919-39

Year	Prices Received by Farmers[a]	Wage Rates[b]	Wages Paid[c]	Gross Rent[d]	Cash Farm Income[c]
			(millions of dollars)		
1919	215	207	1,515	2,226	14,602
20	211	242	1,780	1,645	12,608
21	124	155	1,159	1,208	8,150
22	132	151	1,122	1,347	8,594
23	143	169	1,219	1,501	9,563
24	143	173	1,224	1,651	10,221
25	156	176	1,243	1,585	10,995
26	146	179	1,326	1,518	10,564
27	142	179	1,280	1,648	10,756
28	151	179	1,268	1,640	11,072
29	149	180	1,284	1,621	11,296
30	128	167	1,134	1,315	9,021
31	90	130	847	906	6,371
32	68	96	584	669	4,743
33	72	85	512	793	5,445
34	90	95	601	953	6,780
35	109	103	740	1,101	7,659
36	114	111	880	1,187	8,654
37	122	126	1,039	1,218	9,217
38	97	125	1,000	1,080	8,168
39	95	123	982	1,170	8,684

[a] *Agricultural Statistics, 1945*, p. 430, 1910–14=100.

[b] Bureau of Agricultural Economics, Department of Agriculture, *Farm Wages Rates, Farm Employment, and Related Data, 1943*, pp. 3–4, 1910–14=100.

[c] Bureau of Agricultural Economics, Department of Agriculture, *Net Farm Income and Parity Report, 1943* (1944), pp. 26 and 18.

[d] *Agricultural Statistics, 1943*, p. 412.

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[12] The following tabulation indicates the relationship more clearly than Table IV:

Year	*Prices Received*	*Cash Farm Income*	*Wage Rates*	*Wages Paid*	*Gross Rent Paid*
1929	100	100	100	100	100
1930	86	80	93	88	81
1931	60	56	72	66	56
1932	46	42	53	45	41
1933	48	48	47	40	49

Wage rates tended to lag behind prices and employment of hired labor might therefore have been expected to decline slightly, as indeed it did.

The net income attributable to land, capital, and labor accounts for roughly 70 per cent of gross agricultural income.[13] The remainder is attributable to products and services purchased (about 15 per cent),[14] taxes (about 4 per cent), and depreciation and maintenance (about 11 per cent). Of these, only taxes requires a net outlay regardless of the level of output or prices. Current outlay for depreciation and maintenance in agriculture can be postponed almost in its entirety for as long as four years.

Current purchases of products and services from the non-agricultural sector of the economy are not made under supply conditions comparable to the supply conditions for land, labor and capital. During depressions, prices of these products and services do not decline as rapidly as prices received by farmers. Consequently, except for products and services that are limitational in character, purchases of such items should fall considerably. And this was the case. Fertilizer prices decreased by 35 per cent.[15] Fertilizer consumption declined by more than 45 per cent.[16] Farm machinery prices declined by less than 10 per cent. Expenditures on motor vehicles and machinery, including repairs for machinery, declined by more than 70 per cent. Building material prices fell 20 per cent, and expenditures by about 80 per cent.

Other current inputs of a highly varied nature, such as the cost of operating motor vehicles, electricity, twine, ginning fees, and seeds apparently declined only moderately in price and in quantity purchased. Many of these inputs such as seed, twine, ginning fees, and containers are in the category of inputs having fixed coefficients of production. Consequently, farmers would not decrease their use of these items as long as they continued to stay at full production.

Two other categories of expenses to the individual farmer need consideration, namely, feed and livestock purchases. Though data on quantities of feed and livestock purchased are not available, the data on expenditures and prices indicate that quantities of feed and livestock purchased decreased by roughly 10 per cent. The prices of feed and livestock declined slightly less than farm prices in general, perhaps five per cent less. Because of the slightly smaller relative price declines in feed and livestock for feeding purposes, one would expect that interfarm sales of these items would decline some but not much.

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[13] D. Gale Johnson, "Allocation of Agricultural Income," *Jour. Farm Econ.*, Vol. XXX (Nov., 1948), p. 742.

[14] Includes only products and services purchased from non-farmers.

[15] *Agricultural Statistics, 1945*, p. 429.

[16] *Ibid.*, p. 467.

The theory that we have outlined rests on certain presumptions about the supply functions of labor, capital, and land. This theory is not complete. Certain important aspects of output behavior, such as the constancy of livestock output, are not explained by the assumptions. The theory explains why all crop land is utilized during a depression, but it is insufficient to explain why farmers sell the output of durable products or transform the feed into livestock. Why do the farmers not store such products as wheat, corn, and oats during periods of absolute and relative price declines during a major cycle?

TABLE V.—PRODUCTION OF FEED GRAINS, HAY, AND PASTURE, PRODUCT ADDED BY LIVESTOCK AND HOGS

Year	Production of Feed[a] Grains, Hay, and Pasture	Product Added by Meat Animals and[a] Animal Products	Product Added by Hog Production[b]
1919	106	83	14.0
20	116	80	13.5
21	108	84	14.1
22	107	89	16.5
1927	107	95	16.3
28	108	96	16.2
29	103	97	15.6
30	94	99	15.2
31	103	101	16.5
32	113	101	16.4
33	96	103	16.6

[a] 1935–39=100. Source: Glen T. Barton and Martin R. Cooper, *Farm Production in War and Peace*, USDA, BAE, F.M. 53, p. 74.

[b] In billions of pounds. Source: *Agricultural Statistics, 1940*, p. 370.

Tables V and VI present the data indicating the constancy of livestock output. Table V requires no comment; farmers kept on producing livestock. Table VI indicates that falling prices led to only minor increases in the stocks of corn and wheat. Most of the wheat stocks were held by the government. The increase in corn stocks should be seen in their proper perspective; from 1929 through 1932, more than 10 billion bushels of corn were produced. Of this total, hogs consumed at least 4 billion bushels.

It is necessary to specify the nature of the supply function for current use or sale of the durable farm products in order to explain this behavior on the part of the farmer. The supply function for current use or sale of durable farm products shifted to the right roughly as far as did the output curve for these products. In other words, the demand for inventories by farmers or others did not increase to result in a significant difference between the physical output of the products and the quantities offered for sale or used as inputs for further production; supply prices of factors used in producing livestock fell proportionately as much as the prices of livestock, and as one would expect, livestock output was maintained.

TABLE VI.—PRICES AND TOTAL STOCKS OF CORN AND WHEAT IN U. S.

Year	Total Stocks (millions of bushels) Corn	Total Stocks (millions of bushels) Wheat	Corn Price (previous marketing year) (cents per bushel)	Wheat Price (previous marketing year) (cents per bushel)
	(Oct. 1)	(July 1)		
1919		85		205
20		170		216
21		124		183
22		96		103
23		132		97
1927	217	109	75	122
28	92	113	85	119
29	148	227	84	100
30	136	291	80	104
31	168	313	60	67
32	270	375	32	39
33	386	378	32	38

Source: *Agricultural Statistics 1940*, pp. 10, 23, 46 and 54.

Two explanations seem relevant for the failure of the demand for inventories to increase during depressions. First, farmers do not believe that they can estimate anticipated prices very accurately. What I feel to be the best model available to them, namely, that next year's price will be the same as this one, is consistent with not holding stocks in any large volume.[17] Second, most farmers have never had enough capital to be able to forego the current income required by a definite storage policy or to permit them to accept the large risks that arise from storage.[18]

If private storage has not acted to stabilize somewhat the price of the

[17] See D. Gale Johnson, *Forward Prices for Agriculture* (Chicago, University of Chicago Press, 1947), Chap. VI.

[18] *Ibid.*, Chap. X, esp. pp. 156-61. The path of price movements during and following the 1929-33 depression indicates that farmers were relatively wise in not accumulating stocks. For example, if a farmer had stored wheat in 1930 and if the costs of storage were 10 cents a year, he would have been unable to have made a profit at any time until the present. If he had stored wheat in 1931, he would have realized a substantial gain within two years. The same circumstances were true in corn. But what basis would a farmer have had for knowing that he should have stored in 1931 but not in 1930?

durable products over the cycle through storage operations, we may find that public storage will do so. If this occurs, agricultural output will behave quite differently from the way it has in the past. The output of livestock products will decline during the depression and so will aggregate agricultural output. However, government policy may also involve subsidization of the output of livestock products. If this is done, total output would be maintained.

The theory propounded above is consistent with the behavior of the non-agricultural firms that maintained output during the depression. Most of the firms—in meat packing, butter, evaporated milk, cheese, shortening and beet sugar—had one input that was extremely important from a cost standpoint, and this input had a supply function similar to that ascribed to land or to labor in agriculture. This input was an agricultural product. Since the alternative cost of these products fell sharply, the same volume of product would be available for processing at a much lower price and at a price that would clear the market.

Since other factors used by these industries did not have the same type of supply curves for other inputs, total output in any real sense probably fell. The data seem to indicate that hours worked declined more than output. Output is usually measured for such industries as a linear function of agricultural input.

II. *Agricultural Output during Periods of Full Employment*

The movement of farm prices relative to non-farm prices appears to have no important influence upon total agricultural output during periods of recession or depression. The reasons for this behavior have been outlined above. It is sometimes assumed that agricultural output would be equally unresponsive to a decline in relative farm prices under full-employment conditions. This statement, however, cannot be empirically verified by the experience of the United States. There is no period in our history for which we have reasonably accurate data—which means since 1900—when high levels of employment coincided with declining relative farm prices.[19] One such period may now be emerging—starting in 1949.

Consequently those individuals who rely solely upon empiricism and eschew the use of theoretical models can find no support for the contention that farm output is not responsive to declining relative farm prices when employment opportunities are readily available in the rest of the economy. It may well be that under dynamic conditions aggregate agricultural output would not actually decrease despite a fall in relative

[19] The late 'twenties does not seem to constitute such a period. As indicated in Table III, except for the single year 1925, relative farm prices were stable from 1923 through 1929.

farm prices, but such a statement is certainly not the same as the statement that relative prices do not affect the level of output. If clarity of thought is considered important, the two statements should not be confused.

Since 1900 there have been three periods of sustained full employment. During two of these periods—1900 to 1919 and from 1940 to 1948—real farm prices were rising. The only other period of sustained full employment—1923 to 1929—was a period of relatively stable real farm prices.

A. *Implications of the Theory*

The theory by which we have sought to rationalize the behavior of farm output during depressions has important implications for the behavior to be expected under full employment conditions. These implications can be best outlined by considering, first, the effect of changes in relative prices under given production conditions, and second, the modifications introduced by changes in production conditions.

Under given production conditions, output of agricultural products can change only as a result of changes in the quantity factors of production employed—to speak broadly, in the quantities of land, labor, or capital employed. An increase in the real price of output will raise the marginal product of factors to farmers, and therefore lead them to demand a larger quantity at previous prices. Under given conditions of supply of factors, this will lead to an increased employment of factors —unless their supply prices are perfectly inelastic—and hence to an increase in output.

A decline in the price of real output will lower the marginal products of the factors. At previous prices of the factors, farmers will demand smaller quantities of the factors. For downward movements in factor prices, the supply function for land is almost perfectly inelastic in the short run. Land is an asset with no alternative use outside of agriculture and its quantity will be affected only as depreciation and depletion exceed maintenance expenditure. A protracted decline in prices would lead to the former exceeding the latter and thus to a decline in the quantity of land supplied.[20] Capital equipment of a durable nature also has an inelastic supply function for downward price movements in the short run. A given quantity of such equipment exists and its quantity can be reduced only by depreciation since it has no alternative use outside of agriculture. The value of the existing assets would decline and new purchases from the nonfarm sector would be reduced. The marginal product of labor would decline and the demand for labor would decrease. Given flexible wage rates in agriculture, labor employment would decrease as a result of migration though unemployment would not emerge.

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[20] Unless the government subsidizes maintenance through payments for "soil conservation" or increases the available supply of land through irrigation and reclamation projects.

In a period of three to five years of declining real output prices, the reduction in farm output will depend largely upon the reduction in farm labor employment. The supply of labor to agriculture is a function of its wage in agriculture, of the wage for comparable labor in nonagriculture, of the level of unemployment, and of the growth of the farm labor force due to the excess of additions (individuals living on farms reaching working age) over withdrawals (from death or retirement). If the elasticities of the quantity of labor supplied with respect to the farm wage rate, the nonfarm wage rate and unemployment are relatively small, the reduction in labor supplied produced by a decline in relative prices may be fairly small. These are likely to be the conditions when the price decline is assumed to be temporary. If the price decline is assumed to be permanent, the elasticities of the quantity of labor supplied with respect to the relevant variables are likely to be relatively large, and the adjustment in labor supply would occur more rapidly.

In the above paragraphs, it has been assumed that the production function remains unchanged. The production function in agriculture does change as new techniques become available. Though the availability of new techniques of production is probably unrelated to the level of farm prices, the rate of adoption of new techniques requiring significant investments might be. Many types of new techniques have not, however, required important investments by farmers adopting them in the past; for example, new seeds, new feeding methods and rations, and disease control methods. Thus it may be assumed that the production function shifts at a slow rate under any circumstances and that this rate may be increased somewhat by high real output prices.[21]

If real farm prices were constant, agricultural output would gradually increase due to the autonomous shifts in the production function. The employment of farm resources in a growing economy could increase, decrease, or remain constant depending upon the annual change in demand for farm products, the technological change in agriculture, and the technological change in the rest of the economy.[22] If the annual change in demand were equal to the technological change in agriculture, which in turn was equal to the technological advance in the rest of the economy, resource employment in agriculture would remain unchanged. However, if technological change occurred more rapidly in the rest of the economy than in agriculture, constant real prices of farm products would result in a decline in relative returns to resources in agriculture and some reduction in resource use, particularly of capital and labor. In this case, constant real prices would not represent a long-run equilibrium situation.

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[21] The evidence on the relation between output prices and technological change is admittedly conjectural. It cannot be assumed that because output per worker rises more rapidly during periods of high or rising prices than during periods of low or falling farm prices, the production function is shifting more rapidly in the former period than in the latter. High or rising prices induce more investment per worker, which is not the same thing as a technological change. It is argued below that the rate of technological change in agriculture has been much less than is generally assumed. The same may be true in the rest of the economy. Increased capital per worker over the years may be as important, if not more important, than technological change in increasing output per worker.

Given technological change, falling real farm prices need not produce a decline in aggregate output in agriculture. The autonomous shift in the production function may increase the marginal physical productivity of each of the resources sufficiently to counteract the decline in resource use. In consequence, the failure of aggregate output to decline would not be inconsistent with long-run equilibrium in the factor markets.[23]

We have so far taken no account of either uncertainty or capital rationing. A change in relative farm prices for one or two years may not affect the level of resource employment because entrepeneurs do not expect such change to be permanent. Consequently, actual plans may be made in terms of expected prices either higher or lower than the market prices. Capital employment is not determined solely by profit maximization; in addition, as has been argued elsewhere, capital use in agriculture is subject to capital rationing.[24] Consequently, new investment in agriculture is a function of the liquidity position of farmers as well as of current and expected returns. However, this factor will not reverse the general direction of movement of capital employment, though the amount of investment would obviously be affected thereby.

In testing the above propositions in any empirical situation, one specific caution must be noted. The conditions stated and conclusions following therefrom are based on the assumption that the economy has been operating at a high level of employment for some time. In other words, it is assumed that labor unemployment in the nonfarm sector of the economy has not been acting as a deterrent to the migration of labor out of agriculture. At the beginning of the period of rising real farm prices if there is much unemployment of labor in the nonfarm economy, farm labor will be earning less than comparable *employed* nonfarm labor. Consequently, if the rise in real farm prices is associated with a decline in unemployment, the supply function of agricultural labor will shift to the right; farm labor employment will decline even though the return to labor in agriculture rises relative to the return to employed labor in non-agriculture.[25]

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[22] The change in the demand for farm products is assumed to be a function of the change in per capita income and of the change in population. Technological change is measured by the increase in output from a fixed quantity of resources.

[23] The share of total national output produced by agriculture would decline.

[24] See D. Gale Johnson, *Forward Prices for Agriculture,* Chaps. IV and V.

B. *Tests of the Theory*

1. *1900-1920.* The period 1900 to 1920 was one of almost continuous high levels of employment. According to Douglas, unemployment in manufacturing and transportation—two cyclically volatile industries—exceeded six per cent in only four years out of the 22.[26] And only two of these were consecutive years—1914 and 1915.

Real farm prices apparently rose by 25 to 30 per cent,[27] and farm output, by 25 per cent[28] or roughly 1 per cent per year.

The increased farm output was associated with increased employment of all resources except labor—labor employment was roughly the same in 1920 as in 1900.[29] The employment of other resources, however, increased sharply. Total cropland increased from 319 million acres in 1900 to 402 million in 1920—an increase of 26 per cent. However, the land added was less productive (produced less rent per acre) than existing cropland. The net increase in the production capacity of the land was probably of the order of 15 per cent. The quantity of farm power, machinery and equipment increased from an index of 295 in 1900 to 477 in 1920—an increase of 62 per cent.[30] Livestock, exclusive of horses and mules, increased by 12 per cent. Total capital inputs probably increased by 30 per cent. Current operating expenses must have increased by at least 100 per cent, perhaps considerably more.[31]

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[25] There is, of course, an increase in real farm prices that would increase the demand for farm labor by more than the supply decreased and thus result in an increase in farm employment. The argument in the text implies only that an increase in real farm prices and in farm labor returns (wages of hired labor and labor income of unpaid workers, including the operator) relative to the wages of employed nonfarm workers need not be inconsistent with a decline in farm employment in a specific situation.

[26] Paul Douglas, *Real Wages in the United States* (Boston, Houghton Mifflin Company, 1930) p. 445.

[27] See Bureau of Agricultural Economics, *1949 Agricultural Outlook Charts*, p. 1.

[28] Martin R. Cooper, Glen T. Barton, and Albert P. Brodell, *Progress of Farm Mechanization*, Dept. of Agriculture Misc. Pub. No. 630, p. 81.

[29] Barton, Cooper and Brodell estimate farm employment at 11.4 millions in 1900 (*ibid.*, p. 5). The Bureau of Agricultural Economics estimates the 1920 farm employment as 11.4 and 1910 as 12.1 (*Farm Wages, Employment and Related Data, 1943*).

[30] See Barton, *et al.*, *op. cit.*, p. 7.

[31] From 1910 to 1920, total current operating expenses, excluding feed and livestock purchased and short-term interest, deflated by the index of prices paid by farmers for items used in production, except feed, increased by 69 per cent. Similar data are not available for 1900 to 1909.

The increased employment of resources was sufficient to account for most of the increased output,[32] and the changing relative prices of output and inputs, to account for the increased employment of land, capital and current inputs.[33] In consequence, no substantial change in technology can be inferred from the increase in output.

Why did farm labor employment fail to increase? The evidence available is inconclusive in indicating what rational conduct would have been for farm workers. Farm labor income per worker rose relative to the income of employed industrial workers between 1910 and 1919. The absolute difference between annual earnings, however, increased from about $335 in 1910-14 to $570 in 1919, and to $820 in 1920. A rise in relative earnings when the absolute differences increase may nor may not indicate that real returns to farm workers increased relatively. When the absolute difference is actually larger than the farm labor return, as it was in 1910-14, possible differential changes in the cost of a fixed level of living and changes in the content of the level of living make it impossible to infer with certainty whether the real returns to farm labor kept pace with the real returns to nonfarm labor.

2. *1923-29*. The period from 1923 through 1929 was one of stable relative farm prices (in the aggregate). The parity index—a measure of relative farm prices—had the following values starting with 1923—86, 86, 92, 87, 86, 90, 89.

Our theory would indicate reasonable stability in the employment of all inputs, except perhaps labor. With respect to capital and land, actual experience does not contradict the expectations. Net investment in horses and mules, machinery, motor vehicles, including tractors, trucks, and the farm share of autos, and service dwellings was zero or perhaps negative.[34] The estimate made by Cooper, Barton and Brodell of farm power and machinery also indicated no change.[35] The current inputs purchased from non-agriculture increased, in real terms, by about 22 per cent. This increase was associated largely with the shift from farm produced to mechanical power.[36]

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[32] We do not have the data that would permit an accurate estimate of the production function for agriculture. However, a crude estimate of changes in the function is possible if we assume (a) that there are constant returns to scale for agriculture as a whole, and (b) that the marginal productivities of resources are equal to the average net productivities. (As defined by Joan Robinson, ***Imperfect Competition*** [London, Macmillan, 1934], p. 239.)

Using estimates of average productivities for 1910-14 (See Johnson, "Allocation of Agricultural Income," p. 742) and assuming two different functions that meet the requirement of constant returns to scale (one linear and one linear in the logs), the following functions were obtained:

(1) $\text{Log output} = .44 \log \text{labor} + .27 \log \text{land} + .17 \log \text{capital} + .12 \log \text{current expenses}$.

(2) $\text{Output} = .44 \text{ labor} + .27 \text{ land} + .17 \text{ capital} + .12 \text{ current expenses}$.

All variables were 100 in 1900, while the 1920 values were 100 for labor, 115 for land, 130 for capital and 200 for current inputs. Substituting these values in the functions gave 1920 estimates of output of 118 for the log function and 121 for the linear function. Actual output was 125. Roughly three-fourths or more of the increase seems to have been explained by increased inputs.

[33] Between 1910 and 1920, the average price of current inputs increased from 100 to 188, while farm prices increased from 102 to 211. Comparable data are not available for 1900 through 1910, but during this period the wholesale price of farm products increased by 47 per cent and the wholesale price of nonagricultural products increased by 17 per cent.

It is not clear how labor employment should have been expected to behave. If it is assumed that the labor market was in long-run full-employment equilibrium in 1923, there should have been no appreciable change in labor employment. And this is what actually happened according to Bureau of Agricultural Economics estimates. Total farm employment declined by less than one per cent.[37]

Between 1923 and 1929, the labor income of farm workers increased somewhat relative to the income of employed industrial workers—from about 30 per cent as much in 1923 to about 35 per cent in 1929.[38] During the seven-year period, there was a net movement of 4,260,000 people off farms—an annual average of 630,000 or roughly two per cent of the population.[39] This movement, large as it was, was only sufficient to stabilize the quantity of labor supplied.

The changes in farm production and in resource use are not inconsistent with an essentially unchanged production function. Calculations similar to those in footnote 32 indicate that one-half of the approximate eight per cent increase in farm output can be explained by increased inputs. The rest of the increase could be due to weather and other natural changes, though there seems to be no evidence that weather changes were important.[40]

3. *1940-48*. Following 1940, real farm prices rose rapidly—from 80 to a peak of 121 in 1946 and then fell slightly to 115 in 1948. It seems clear that the demand for all inputs would rise in these circumstances. And such increases in demand did occur. More capital was employed

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[34] Based on values expressed in 1910-14 dollars. Data taken largely from Bureau of Agricultural Economics, *Net Farm Income and Parity Report, 1943.*

[35] *Op. cit.*, p. 81. The index was 454 in 1923 and 466 in 1929.

[36] *Ibid.*, p. 90. The cost of farm produced power which is payment for inputs produced by farmers, declined by $300,000,000 measured in dollars of constant purchasing power. Costs of operating mechanical power increased by 390 million dollars.

[37] See Bureau of Agricultural Economics, *Farm Wages, Farm Employment, and Related Data*, p. 155.

[38] Based on estimates of labor income by writer, "Allocation of Agricultural Income," p. 738 and Bureau of Agricultural Economics, *1949 Agricultural Outlook Charts*, p. 7.

[39] Bureau of Agricultural Economics, *Farm Population Estimates, 1910-1942*, pp. 1 and 2.

[40] See United State Department of Agriculture, *Crops and Markets*, 1949 edition, p. 6 for estimates of yields per acre. Yields for field crops were identical in 1923 and 1929.

and net investment would have been even greater had items been available at quoted prices. Between January, 1940 and January, 1948, the quantity of power and machinery increased by about 40 per cent. Acreage of land harvested increased by about 10,000,000 or 3 per cent. Current operating expenses (except livestock and feed purchased and short-term interest) increased by 60 per cent. Farm output increased by 20 per cent.

The farm population declined from 30.3 millions to 27.8 millions by January 1, 1949, and the level of farm employment by slightly more than 4 per cent.

The change in farm employment is consistent with our theory. It is quite clear that labor in agriculture was not in a position of long-run equilibrium in 1940. The supply of labor was large in agriculture because of the heavy rate of unemployment that had prevailed previously in the rest of the economy. As unemployment declined, the supply of labor to agriculture also decreased. The differential in earnings was such as to induce movement out of agriculture at a given level of unemployment. Agriculture had a net migration during the last half of the 'thirties of 2,770,000 or 555,000 per annum,[41] despite unemployment ranging from 14 to 20 per cent.[42]

Agriculture would have lost more of its labor force had it not been for the rapid rise in returns to agricultural resources. During the early part of the period, labor income in agriculture rose more rapidly than labor income in the rest of the economy, yet the movement out of agriculture was at a fantastic rate—net civilian migration of 1,920,000 in 1942 and 1,146,000 in 1941. This was due to the large absolute difference in real earnings that still persisted. In 1941, labor returns per worker on commercial farms was $700 less than the wage income of employed workers—a difference of slightly less than 50 per cent. By 1946 the absolute difference had narrowed to $450 and the relative difference to 20 per cent,[43] and these differences remained roughly the same in 1947 and 1948.

In the three years 1946, 1947, and 1948—there was probably a rough equilibrium in the allocation of labor to commercial farms. Consequently, no significant change in farm population or labor force was to be expected during these years, except from the return of veterans. Apparently about one-half of the farm veterans returned to the farm and stayed there.

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[41] Bureau of Agricultural Economics, *Farm Population Estimates, 1910-1942*, p. 2.

[42] Bureau of Agricultural Economics, *1949 Agricultural Outlook Charts*, p. 4.

[43] See Johnson, "Allocation of Agricultural Incomes," pp. 740 and 745, and Bureau of Agricultural Economics, *1949 Agricultural Outlook Charts*, p. 7.

The change in the production function between 1940 and 1948 was probably not as spectacular as is frequently believed. A large fraction of the increased output—perhaps half—can be attributed to increases in resource inputs. The remainder can be attributed to changes in the production function and natural factors, such as weather.

C. *Conclusions*

On the whole, the simple theory that we have used gives a reasonably accurate indication of the response of resource employment and output to changes in relative farm prices during periods of high-level employment, at least as judged by the three "tests" we have been able to make.

The attempt to judge the shift in the production function in the periods surveyed is significant in understanding the probable response of farm output to falling relative prices during periods of high-level employment. If during a period of rising relative prices, a considerable fraction of the increased output reflects increased inputs, a subsequent period of falling prices may well result in an actual decline in output. As farm prices decline, net investment will fall, the level of current inputs will diminish, and labor migration will increase. The decline in output may not be large, but it does not need to be in order to re-establish equilibrium in the factor markets because of the price inelasticity of demand for agricultural output.

An important policy conclusion can be drawn from this analysis. Maintaining farm price returns at levels above market prices during periods of high-level employment will make farm output higher than it would otherwise be.[44] Such induced increases in output will increase the difficulty of maintaining farm price returns, necessitating direct controls of output if governmental expenditures are not to exceed the amounts that even a "generous" Congress is willing to appropriate. In fact, it can be argued that increasing farm price returns by governmental action during periods of full employment does a real disservice to farm people, unless agriculture is to be permanently subsidized. If the price props are withdrawn (or a depression occurs), returns to agricultural resources would be lower than otherwise because too many resources have been retained in agriculture.

The attainment of equilibrium in the factor markets in agriculture during a period of generally falling prices or after the establishment of a lower level of agricultural prices may take longer than seems desirable. If this is so, the appropriate policy action would not seem to be higher support prices ***which would prevent the resource adjustments from occurring***. Rather, the slowness of the adjustment process would seem to call for direct measures to increase the outmovement of labor.[45]

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[44] The term farm price returns is used in this paragraph instead of farm prices because farm prices can be supplemented by direct subsidies to farmers.

Summary

The theory presented in this article to explain the output behavior of agriculture rests on two major assumptions: (1) That farmers are profit-maximizing entrepreneurs and (2) that the supply functions of factors to agriculture have certain characteristics. These characteristics are: (a) The labor supply function shifts with changes in the general level of business activity and unemployment (reflecting the alternatives to farm employment) and for any level of business activity, unemployment and nonfarm wage rates, the price elasticity with respect to labor returns in agriculture is small enough to lead to essentially full employment of labor. (b) The land supply function has a very low price elasticity in the short run in part due to the lack of alternative uses outside of agriculture and due to small changes that can be made in the quantity of land through investment and disinvestment. (c) The supply function of capital assets has a very small price elasticity for downward movements in prices since the quantity of such assets existing at any one time can achieve higher returns in agriculture than elsewhere; in response to upward movements in prices, the price elasticity is higher as new investment becomes profitable to farmers.

This theory, simple as it is, seems to be consistent with the observed phenomena. The theory seems much more useful in understanding the behavior of agricultural output under various sets of circumstances than other explanations that have been offered. The high fixed cost explanation of constancy of output during a depression not only has the defect of being inconsistent with the observed behavior of the employment of hired labor and rented land, but high fixed costs are not an explanation at all of output responses to rising real output prices. Nor does the competitive structure of agriculture seem to have much relevance to output behavior. Other explanations—the length of the production process and the importance of subsistence production—have been found to be unsatisfactory. The effect of the real wage upon the amount of effort a given labor force will exert is an explanation of behavior that seems consistent with observed phenomena. It is a hypothesis that deserves further investigation. The hypothesis is not inconsistent with the theory expounded here. If we knew more of its relevance and significance, it would be possible to specify with greater accuracy the nature of the labor supply function.

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[45] Walter Wilcox has indicated a contrary view in "High Farm Income and Efficient Resource Use," *Jour. Farm Econ.*, Vol. XXXI (Aug., 1949), pp. 555-57. He argues that farm migration is increased by high farm family incomes due to increased mechanization and the aid high incomes give to migration. He used population changes for Iowa, South Carolina and Tennessee for 1930 to 1940 in support of his position. A more detailed study of farm migration for the same decade made under the direction of the writer indicates that state differences in migration rates were unreleated to the level of farm income. The two factors which were most closely associated with migration were a measure of population pressure (the excess of new entrants to the farm labor force over deaths) and changes in the level of farm income from the late 'twenties to the 'thirties. The changes in farm population in the Pacific Coast States since 1930 clearly contradict Wilcox's position, as well.

U. S. CONSUMPTION AND INVESTMENT PROPENSITIES: PREWAR AND POSTWAR

By TA-CHUNG LIU AND CHING-GWAN CHANG*

It is very difficult, if not impossible, on account of the extremely small number of observations available, to make any direct estimate of the postwar consumption and investment functions.[1] Some knowledge of these functions, however, is indispensable for an understanding of postwar economic developments. An indirect way of throwing light on the problem is to examine whether or not the few postwar observations can be assumed to fall more or less in line with prewar relations. The present paper represents an attempt in this direction. If it could be shown that prewar relations had to a large extent been restored, then the relatively large amount of prewar data would have a close bearing on the analysis of current problems.

In Section I, certain unsettled problems in the existing estimates of the prewar consumption and investment functions are discussed. A simple set of relations between national product, consumption, investment, the consumers' price index, corporation profits after taxes and government expenditure is then set up in Section II to be fitted statistically. The results of the estimate are outlined and analyzed in Section III. The basic data, the method of estimate, and the considerations underlying the adoption of the particular functional forms for the consumption and investment functions are discussed in the Statistical Appendix where a stochastic model of the consumption and investment functions somewhat different from the one in the text is given.

The main conclusions of this article are:

1. Fluctuations in prewar consumption can be satisfactorily "explained" by movements in national product and the consumers' price level. While it cannot be definitely proven that the prewar consumption

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[1] If annual data are to be used, there are only three complete postwar observations available, *i.e.*, those of 1946, 1947, and 1948. Owing to the well-known difficulties involved in correlating economic time series, regression equations obtained on the basis of quarterly data are likely to be misleading.

function has really been restored during the postwar years, the postwar consumption expenditures do appear to be very close to what the prewar consumption function would require them to be. Contrary to a complete absence assumed in the existing estimates of the consumption function, the influences of "money illusion" are statistically discernible but are less important than would be expected on theoretical grounds. The price elasticity of demand for aggregate consumption, with income at the level of that of 1948, is estimated at about 0.8.

2. Fluctuations in prewar investment can be more or less satisfactorily explained by movements in national product and corporation profits after taxes. In spite of the fact that postwar investment activity has been carried out on a very large scale, it appears to be still well below what it would have been if the prewar investment function had been restored. An interesting but very tentative indication can be deduced from the system of equations obtained in this paper to the effect that a simultaneous and equal reduction in government expenditure and business taxes of, say, a billion dollars would tend to reduce the money value of the national product by 2.7 billion dollars, in spite of the fact that investment would be encouraged by the reduction in business taxes.

I. *Comments on the Existing Estimates*

In view of the large number of statistical estimates of the consumption and investment functions which have appeared during the last few years,[2] it might seem redundant to make still another estimate. There are, however, many unsettled problems. This paper proposes to deal with two of them.

1. Most of the existing estimates of the consumption function assumed that *real* income was the most important independent variable that determined *real* consumption. Omitting certain minor independent variables, such as the rate of change of income, etc., that are included

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[2] The following list is by no means exhaustive: Samuelson, P. A., "A Statistical Analysis of the Consumption Function," in Hansen, A. H., *Fiscal Policy and Business Cycles* (New York, Norton, 1941); Ezekiel, M., "Statistical Investigations of Saving, Consumption and Investment," *Am. Econ. Rev.*, Vol. XXXII, No. 1, Pt. 1 (Mar., 1942), pp. 22-49 and same vol., No. 2 (June, 1942), pp. 272-307; Smithies, A., Livingston, M., and Mosak, J. L., "Forecasting Postwar Demand," *Econometrica* (Jan., 1945), Vol. XIII, pp. 1-53; Woytinsky, W. S., Relationship between Consumers' Expenditures, Savings, and Disposable Income," *The Review of Economic Statistics*, November, 1946; Hagen, E. E., "Forecasting Gross National Product and Employment during the Transition Period," *Studies in Income and Wealth*, Volume 10 (New York, 1947); Haavelmo, T., "Methods of Measuring the Marginal Propensity to Consume," *Jour. Am. Statistical Assoc.*, Vol. 42, No. 237 (March, 1947), pp. 105-122; Sapir, M., "Review of Economic Forecasts for the Transition Period," and Modigliani, F., "Fluctuations in the Saving-Income Ratio: A Problem in Economic Forecasting," *Studies in Income and Wealth*, Volume 11 (New York, 1949).

in their functions, the existing estimates of the consumption function are essentially of the following form:

$$c = ay + b$$

The symbols represent the following:

c = Real consumption
y = Real income
a = The income propensity to consume
b = Autonomous consumption

The relevant price levels entered these functions only in so far as c and y were obtained by deflating the money values of these variables by some price indices. The basic assumption of this functional form was that consumers were entirely free from "money illusions," *i.e.*, their decisions on the amount of consumption to be undertaken were reached entirely on the basis of "real" calculations. In other words, consumption would remain at the same real level if real income were unchanged, no matter what changes had taken place in prices. The bearing of prices on consumption was therefore not recognized except in connection with the deflating process. In any case, none of the estimates included explicitly the consumption price level as a truly determining variable in the consumption function.[3] On theoretical ground, however, one would expect the general consumption price level to be an important independent variable determining the individual's decision, with incomes at given levels, to spend on goods or ***not*** to spend on them. The latter alternative would lead them to put their money into hoards or securities. The basic assumptions of the "real" form of the consumption function, therefore, need to be tested statistically. It will be seen that, while they are not as important as would be expected theoretically, the influences of the price level on consumption, other than those of a deflating factor, are discernible.

The real form of the consumption function adopted in the existing estimates may also be objected to on a technical ground. Because satisfactory price indices for consumption goods (including services) and total income do not exist,[4] the cost-of-living index (*i.e.*, the consumer's price index compiled by the Bureau of Labor Statistics) was used in the existing estimates to deflate the money values of both consumption and income. Even for deflating consumption figures, the cost-of-living index is not really satisfactory because it includes only the basic needs of a certain class of families in relatively large cities. It goes without saying that the deflation of total income by the cost-of-living index is even less satisfactory. It is rather difficult to tell what these "real" figures truly represent.

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[3] Some authors (*e.g.*, Ezekiel, Livingston and Mosak, *ibid.*), did not emphasize the real magnitudes, but used money values instead. Prices, however, are completely absent from their system; hence, they neglected even the influences of prices as deflators.

[4] The U.S. Department of Commerce made one attempt to derive these price indices. No continued efforts were made, probably because the initial results were not satisfactory. See Shavel, H., "Price Deflators for Consumer Commodities and Capital Equipment, 1929-42," *Survey of Current Business*, U.S. Department of Commerce, May, 1942.

2. Theoretically speaking, one would expect income and business profits after taxes to be two of the most important factors determining investment activities. The former would serve as a measure of the level of economic activities which generate demands for capital goods;[5] while the latter would indicate the magnitude of the incentive for actually making the investment at a given level of demand. In so far as none of the existing estimates undertook to "explain" the movement of investment by total income and business profits after taxes taken together, an attempt seems worth trying.

II. *A Simple System of Relations*

In view of the discussion in the preceding section, a simple system of equations is set up to be fitted statistically:

$$C = aY + bP + c \qquad (1)$$
$$I = dY + eF + i \qquad (2)$$
$$Y = C + I + G \qquad (3)$$

The symbols have the following meanings:

C: Annual consumption expenditure in billions of current dollars
I: Annual gross private domestic investment in billions of current dollars
Y: Annual gross national product in billions of current dollars
P: Consumers' price index
F: Annual corporation profits after taxes in billions of current dollars
G: Annual government purchases of goods and services plus net foreign investment in billions of current dollars
a: Income propensity to consume
b: Price propensity to consume
c: Autonomous consumption
d: Income propensity to invest
e: Profit propensity to invest
i: Autonomous investment

G, P, and *F* are considered as exogenous variables. *C, I* and *Y* are determined by the system.

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[5] For the lack of any evidence indicating the existence of the so-called "acceleration principle," see the discussion on "lagged" variables in Section II.

No pretense is made here that such a simple system could satisfactorily represent the operation of the American economy. First of all, additional variables and equations should be incorporated into the system, so that P and the profits portion of F could be determined by the system, instead of being exogeneous variables. Secondly, the various important components of C and I should be determined by separate equations. Improvement along these lines is desirable, but would demand time and resources not at the disposal of the authors. In fact, it is not intended here to produce completely satisfactory consumption and investment functions. The purpose of this paper is rather the more modest one of making a rough comparison of prewar and postwar consumption and investment tendencies. Since the results of this study seem to indicate that at least the prewar consumption function has more or less been restored during the postwar years, the function of this paper will have been fulfilled if those whose main interest lies in this field would make more elaborate studies to confirm the finding.

There are still other possible ways of refining the above system; but they are not as clearly desirable or important as the preceding ones. First, certain "lags" might be introduced into the system. Before the above system was finally decided upon, numerous experiments had been tried to introduce certain "lagged" variables, especially income, into the equations. The improvements in the correlation coefficients brought about by the addition of these "lagged" variables were rather superficial. To be sure, the addition of a new independent variable always improves a given correlation, unless the new independent variable added had absolutely no relation with the dependent variable. The fact that another new independent variable has been added, however, reduces the significance of the new correlation coefficient even though the new coefficient is numerically higher.[6] In some recent studies, many "lag" relations were discovered; dynamic developments were therefore obtained from the systems. No attempt, however, was made in these studies to show whether the "lagged" variables introduced were not really superficial. It is indeed doubtful, as our experience seems to indicate, whether *significant* "lagged" relations can really be found from *annual* data for consumption and investment functions; on the contrary, it seems rather reasonable to believe that most of the important "lags" are shorter than a year. Secondly, it may be more desirable to use disposable income, in place of gross national product, as the independent variable in the consumption function. Many of the existing estimates have followed this approach. Actually, as will be explained in the appendix, "disposable income" is found to be an excellent linear function of gross national product, and projections from the relation between the two during the prewar decade yield figures for postwar "disposable income" extremely close to the actual figures. From the statistical point of view, therefore, nothing will be gained by using "disposable income" instead of gross product in the consumption function. It must be understood, however, that the income propensity to consume obtained in this paper is related to the gross product (*i.e.*, the tendency of a society as a whole to consume out of its

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[6] For instance, for three independent variables, the minimum correlation coefficient which would exclude purely chance correlation for 20 observations on a 5% significance level is 0.61. For four independent variables, the same coefficient is increased to 0.67. Also, if the improvement in the correlation coefficient brought about by the introduction of an additional independent variable is merely superficial, the standard error or confidence limits of the regression coefficient of the new variable would tend to be too large to be certain of the relevance of the new variable to the problem studied.

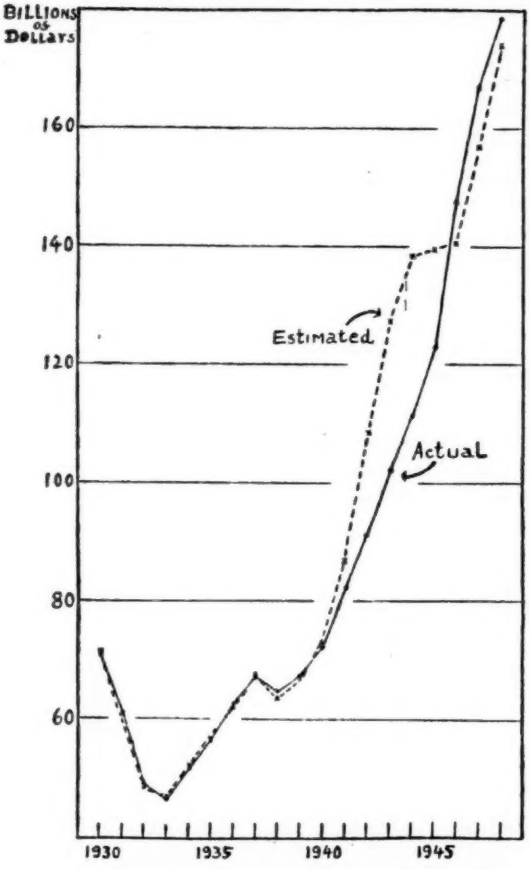

Diagram 1. Actual and Estimated Consumption

total production), and is therefore not directly comparable with those relating to "disposable income." Lastly, a deflation of the income, consumption and investment series by the population figures may also be desirable but not really very important as both the explained and explanatory variables are to be so adjusted.

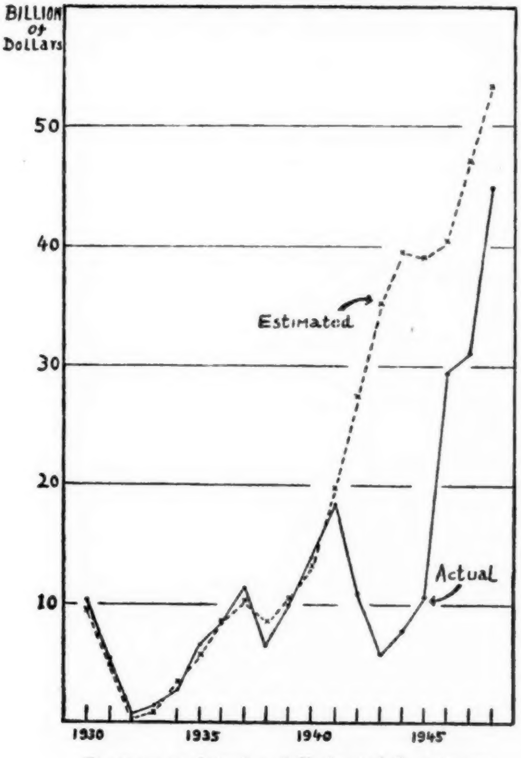

Diagram 2. Actual and Estimated Investment

An objection might be raised immediately against the above system on the ground that C and Y in equation (1), and I and Y in equation (2) are all money values which have prices as common elements. Any evidence of correlation found between C and Y on the one hand, and I and Y on the other, by finding the regression relations between them, may be "spurious." In fact, this is the major criticism of Mosak's study (see footnotes 2 and 3). This criticism is probably valid in Mosak's case, as Mosak's consumption function was obtained by correlating money value of consumption with money value of income alone. In the present estimate, however, the consumers' price level is included in equation (1). The influences exerted by the price level on *C* would presumably enter into the coefficient "b" instead of "a." These influences would presumably have been incorporated into "a," if *P* were absent from equation (1) as in Mosak's equation. For the investment function, it will be seen that the magnitude of the coefficient "d" is almost exactly the same as the same coefficient in equation (7) in the stochastic model (see Appendix) which also includes price terms. The "spurious" elements, therefore, seem to be absent from equation (2).

III. *Results*

The statistical estimates of the prewar consumption and investment functions, together with the definitional equation of gross product, are as follows:[7]

$$C = 0.535\,Y + 0.214\,P - 3.06 \qquad (1)$$

$$I = 0.221\,Y + 0.339\,F - 11.20 \qquad (2)$$

$$Y = C + I + G \qquad (3)$$

This system of equation is now applied to the analysis of the following three problems:

A. *Comparison of Prewar and Postwar Consumption and Investment Tendencies*

A comparison of the actual consumption and investment data with those estimated from the equations obtained is given in Table II and III in the appendix and are plotted in Diagrams I and II.[8] The solid

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[7] The meanings of the symbols are explained on page 8. The sources of the basic data and the method of estimate are explained in the Appendix. The period covered is 1930-1940 inclusive.

The correlation coefficients of equations (1) and (2), adjusted for numbers of observations and variables, are as follows:

$$RC.YP = 0.99$$

$$RI.YF = 0.97$$

The regression coefficients have the following standard errors of estimates (adjusted for numbers of observations and variables):

Coefficients	*Standard Errors*
$\frac{\delta C}{\delta Y} = 0.535$	0.011
$\frac{\delta C}{\delta P} = 0.214$	0.022
$\frac{\delta I}{\delta Y} = 0.221$	0.038
$\frac{\delta I}{\delta F} = 0.339$	0.193

[8] It is well known that any projection or forecast from a regression equation greatly outside of the range of the original data is susceptible to many pitfalls. Our projections,

line gives the actual data; the dotted line represents the estimated figures.

The following points are discernible from the diagrams:

1. During the war years 1942-1945, both consumption and investment fell sharply below what the prewar functions would indicate them to be. This does not really call for any explanation. Owing to the various wartime controls, shortages, etc., these "sub-normal" developments were to be expected.

2. The actual consumption data for 1946-48 came very nearly to the estimated figures. As has been explained, owing to the extremely small number of postwar observations (three annual points, to be exact), there is no way of estimating, independently of the prewar data, a postwar consumption function to see whether it is about the same as the prewar one. It is indeed conceivable that, in spite of the closeness of the actual and estimated postwar figures within the range covered in postwar years, the postwar function may be substantially different from the prewar function outside of that range.[9] With these cautions properly borne in mind, one may be permitted to say that statistical facts do not contradict the conjecture that the prewar consumption function has more or less been restored or that it is in the process of being restored.

3. In addition to the closeness of the actual and estimated figures, one may find further support for the conjecture advanced in the preceding paragraph in the fact that the actual figures are *consistently higher* than the estimated figures in the postwar years. It is a generally accepted fact that, owing to the various wartime shortages, there was a considerable amount of (and may still be some) "pent-up" demands for a large number of consumers goods. With the shortages gradually disappearing in the postwar years, one would expect consumption expenditures to be somewhat higher than "normal." If one may take the differences between the actual and estimated figures in the postwar years (the three years starting with 1946) as a measure of the fulfillment of the "pent-up" demands, then the total "liquidation" of these demands

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however, are not forecasts as such. They are made only for the purpose of seeing what the results would have been *if* the prewar relations did hold in the postwar years.

[9] Confidence limits of the estimated figures may of course be calculated to help to judge whether the postwar observations fall in line with the prewar relations. Confidence limits, however, merely establish the chances by which a postwar figure would fall within a given range around the estimated figure, if the prewar relations were actually restored. They really cannot prove whether the relations have or have not been restored. This confirms the position that a statistical study can merely indicate that a given theory is a *sufficient* explanation of real phenomena; it can never prove a theory to be *both necessary and sufficient*.

has already amounted to about 21.5 billion dollars up to the end of 1948 (see Appendix, Table II).

4. No such close relationship between the actual and the estimated figures can be observed for investment expenditures in the postwar years. Offhand, one would expect that the actual data for investment would also be higher than the estimated figures as there are also "pent-up" demands for investment goods, in addition to the wartime and postwar development of new industries and technique. The results, however, prove to be otherwise. The failure of the postwar investment expenditures to come up to the levels estimated from the prewar investment function may perhaps be explained ***partially*** by the feeling of uncertainty which existed in the minds of the entrepreneurs as regards the possible course of the developments of the American economy.[10]

B. *Are People Free From "Money Illusion" in Deciding Upon Consumption Expenditure?*[11]

The best way to clear up this point is to compare equation (1) on page 572 with another regression equation obtained by correlating "real" consumption $\left(c = \frac{C}{P}\right)$ and "real" income $\left(y = \frac{Y}{P}\right)$.[12] The latter equation obtained is as follows:

$$c = 0.539y + 0.181 \qquad (4)$$
$$R_{c.y} = 0.99$$

This equation can be converted by multiplying both sides by P to a form comparable with equation (1) on page 572. The resultant equation is given below together with equation (1) for comparison:

New Form of Equation (4)	*Equation (1) Page 572*
$cP = 0.539yP + 0.181P$, or	
$C = 0.539Y + 0.181P$	$C = 0.535Y + 0.214P - 3.06$

As expected, equation (4), taking into consideration the influences of P on C *only* as a deflating factor, gives a greater weight to the influences of Y on C and a smaller weight to the influences of P on C than equation (1) does. The two equations give about equally good fit for the prewar period; but equation (1) gives a slightly better postwar projection than equation (4).

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[10] In fact, the trained economists stood out prominently as a group in whose minds the feelings of uncertainty were the greatest, as evidenced by the conflicting (mostly pessimistic) estimates which they put forth concerning postwar developments.

[11] See the discussion on page 567.

[12] Since both C and Y are deflated by the consumers' price index, this equation has the same weakness found in most of the existing estimates of the consumption function (see the discussion on pages 567-68). It is entirely possible that the people had a greater "money illusion" than that indicated by the comparison in the text, had the "true" consumption price index and the "true" price index for total product been available.

Actual and Projected Consumption Expenditure
(billions of current dollars)

	Actual	Projected from Equation (1)	Projected from Equation (4)
1946	147.8	140.5	139.8
1947	166.9	157.1	155.9
1948	178.8	174.0	172.4

It appears that "money illusion" did exist but not as much as would be expected on theoretical grounds. In order to give a quantitative indication of the extent of "money illusion," the elasticity of demand for consumption goods and services with respect to the consumers' price index is calculated below for 1948, holding money income constant:

η = Elasticity of Demand for Consumption Goods and Services

$$= -\frac{P}{c}\,\frac{\partial c}{\partial P}$$

$$-\frac{\dfrac{\partial C}{\partial P} - c}{c}$$

The figures obtained by using equations (1) and (4) are 0.795 and 0.827 respectively. The difference of $\frac{0.827 - 0.795}{0.821} = 4\%$ may be considered as a measure of the extent of "money illusion." Judged by either calculation, it appears that the demand for consumption goods and services as a whole is rather inelastic. A decline in the consumption price level would lead to an increase in the real output of consumption goods and services as a whole, but, on the other hand, would reduce the money value of total consumption.

C. *The Effects of a Simultaneous and Equal Reduction in Business Taxes and Government Expenditure on Money Income*

The system of equations given on page 572 is a very tentative one and greatly oversimplifies the working of the American economy. Any conclusion obtained by applying the system to the analysis of a concrete problem is therefore necessarily experimental in nature and can serve as no more than an initial reference for further work. In this spirit, a highly tentative analysis is made of the effects on money income of an equal reduction in government expenditure (G) and business taxes (a negative entry in F) under the following assumptions: (1) The prewar consumption function has been restored. (2) The change in the investment function consists of a downward shift, with the regression coefficients remaining roughly the same.[13]

Solve equations (1)—(3) on page 572 for Y in terms of G, F and P:

$$Y = 4.1\,G + 1.4\,F + 0.88\,P - 58 \qquad (5)$$

The coefficient 4.1 and 1.4 measure the "multiplier" effects of G and F respectively. A simultaneous and equal reduction in government expenditure and business taxes, say, by one billion dollars means an *increase* in F and a *reduction* in G, both by one billion dollars. Assuming prices are stabilized at the current level, the net effect in money income would amount to a *reduction of* 4.1 − 1.4 = 2.7 billion dollars, in spite of the fact that private investment would be encouraged by the reduction of business taxes. The consequences of such a policy would be even more disastrous if F were partially an increasing function of Y.[14]

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[13] In other words, with reference to equation (2) on page 572, the change lies in an increase in the absolute magnitude of the constant term. Such a change would affect only the constant term in equation (5) below, but would not affect the coefficients of G and F in that equation.

[14] This can be easily seen as follows:

Differentiating equation (5) with respect to G and recalling $\frac{\delta F}{\delta G} = -1$ (*i.e.*, equal reduction in government expenditure and business taxes):

$$\frac{dY}{dG} = 4.1 + 1.4\left\{\frac{\delta F}{\delta Y}\frac{dY}{dG} - 1\right\},\ \text{or}$$

$$\frac{dY}{dG} = \frac{2.7}{1 - 1.4\,\frac{\delta F}{\delta Y}}$$

A hypothetical example would make the meaning of this formula clear. If $\frac{\delta F}{\delta Y} = 0.1$, then $\frac{dY}{dG} = 3.1$. A simultaneous and equal reduction in government expenditure and business taxes of one billion dollars would result in a loss of money income of 3.1 billion dollars.

STATISTICAL APPENDIX

Basic Data, Methods of Estimate, and a Stochastic Model of the Consumption and Investment Functions

The basic data used in fitting equations (1) and (2) on page 572 and equation (4) on page 574 are the series on gross national product, consumption, investment, corporation profits after taxes and the consumers' price index periodically published by the Department of Commerce in the monthly *Survey of Current Business*. These are reproduced in Table I, together with the series on disposable income, government expenditure, net foreign investment and the wholesale price index which are used in the calculations in this appendix. A close scrutiny of earlier data and the existing estimates appears to indicate that there probably was a shift in both the consumption and the investment functions somewhere in between the 'twenties and the 'thirties. On the assumption that the decade immediately before the war had a closer bearing on postwar years, data for the period 1930-40 inclusive are used in estimating the equations. The classical least square method

Table I.—Basic Data
(in billion current dollars)

	Y Gross National Product	C Consumption	I Gross Domestic Private Investment	G Government Expenditure Plus Foreign Investment	F Corporation Profits After Taxes	Y_D Disposable Income	P Consumers Price Index (1935–39 = 100)	P_1 Wholesale Price Index (1926 = 100)
1930	90.9	70.8	10.2	9.9	2.5	73.7	119	86
1931	75.9	61.2	5.4	9.4	−1.3	63.0	109	73
1932	58.3	49.2	0.9	8.3	−3.4	47.8	98	65
1933	55.8	46.3	1.3	8.1	−0.4	45.2	92	66
1934	64.9	51.9	2.8	10.2	1.0	51.6	96	75
1935	72.2	56.2	6.2	9.8	2.3	58.0	98	80
1936	82.5	62.5	8.3	11.7	4.3	66.1	99	81
1937	90.2	67.1	11.4	11.7	4.7	71.1	103	86
1938	84.7	64.5	6.3	13.9	2.3	65.5	101	79
1939	91.3	67.5	9.9	14.0	5.0	70.2	99	77
1940	101.4	72.1	14.0	15.4	6.5	75.7	100	79
1941	126.4	82.3	18.3	25.8	9.4	92.0	105	87
1942	161.6	91.2	10.9	59.5	9.4	116.7	117	99
1943	194.3	102.2	5.7	86.4	10.4	132.4	124	103
1944	213.7	111.6	7.7	94.4	10.8	147.0	126	104
1945	215.2	123.1	10.7	81.4	8.5	151.1	128	106
1946	212.6	147.8	29.5	35.4	13.9	158.1	139	121
1947	235.7	166.9	31.1	37.7	19.1	172.0	159	152
1948	262.4	178.8	45.0	38.6	21.2	190.8	171	165

Source: Various issues of *Survey of Current Business*, U. S. Department of Commerce.

was used in obtaining the regression equations. Consumption and investment figures estimated from equations (1) and (2) are given together with the actual data in Tables II and III.

TABLE II.—COMPARISON OF ACTUAL AND ESTIMATED CONSUMPTION
(in billion dollars)

	Actual	Estimated	Actual Minus Estimated
1930	70.8	71.1	−0.3
1931	61.2	60.8	0.4
1932	49.2	49.0	0.2
1933	46.3	46.6	−0.3
1934	51.9	52.1	−0.2
1935	56.2	56.6	−0.4
1936	62.5	62.3	0.2
1937	67.1	67.2	−0.1
1938	64.5	63.8	0.7
1939	67.5	67.1	0.4
1940	72.1	72.6	−0.5
1941	82.3	87.1	−4.8
1942	92.2	108.4	−17.2
1943	102.2	127.4	−25.2
1944	111.6	138.2	−26.6
1945	123.1	139.6	−16.5
1946	147.8	140.5	7.3
1947	166.9	157.1	9.8
1948	178.8	174.0	4.8

TABLE III.—COMPARISON OF ACTUAL AND ESTIMATED INVESTMENT
(in billion dollars)

	Actual	Estimated	Actual Minus Estimated
1930	10.2	9.7	0.5
1931	5.4	5.2	0.2
1932	0.9	0.5	0.4
1933	1.3	1.0	0.3
1934	2.8	3.5	−0.7
1935	6.2	5.5	0.7
1936	8.3	8.5	−0.2
1937	11.4	10.3	1.1
1938	6.3	8.3	−2.0
1939	9.9	10.7	−0.8
1940	14.0	13.4	0.6
1941	18.3	19.9	−1.6
1942	10.9	27.7	−16.8
1943	5.7	35.2	−29.5
1944	7.7	39.7	−32.0
1945	10.7	39.2	−28.5
1946	29.5	40.5	−11.0
1947	31.1	47.3	−16.2
1948	45.0	53.9	−8.9

Before the system as given on page 572 was decided upon, careful considerations had been given to several important statistical problems of a technical nature. A brief discussion of these points in this appendix would not only explain how the present system was developed but may also be of some use to workers in this field as a reference on some alternative forms of the consumption and investment functions. Indeed, the closeness of the income coefficients in equation (1) and (2) in the text with those obtained in the stochastic model discussed in Section B below gives further support to the reliability of these estimates.

A. *Disposable income versus gross product as a determining variable in the consumption function* (see discussion on page 569-71)

On theoretical grounds, disposable income would seem to be more preferable as a determining variable in the consumption function than gross national product. The latter alternative, however, would simplify the system (especially in the computation of the stochastic model below), provided that disposable income is a good linear function of the gross product and that the relation is the same for both prewar and postwar periods. Fortunately, such is exactly the case. The following correlation is obtained for disposable income (Y_D) and gross product (Y) for the period 1930-40 inclusive:

$$Y_D = 0.704Y + 7.01$$
$$R = 0.99$$

Projections of disposable income from the above equation for the postwar years yield figures extremely close to the actual data (both in billion dollars):

	Projections	*Actual*
1946	156.6	158.1
1947	172.8	172.0
1948	191.6	190.8

B. *A stochastic model of the consumption and investment functions*

Haamalvo and others[15] have recently shown that, for a simultaneous system of economic relations, the regression coefficients obtained by applying the classical correlation method of fitting the equations separately by the least square procedure do not yield "consistent"[16] estimates of the true parameters. This difficulty can be overcome by deducing, from the original equations, a system of "reduced form" equations which express the endogenous variables as functions of the exogenous variables only. The classical least square method can then be employed to fit the equations, provided that the "identification problem"[17] offers no special difficulty.

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[15] See the bibliography attached to Koopmans, T. C., "Identification Problems in Economic Model Construction," *Econometrica*, Vol. 17, No. 2 (April, 1949).

[16] An estimate is "consistent" if it has the property that the probability of the estimate deviating more than an arbitrary ε from the true parameter approaches zero as the number of observation approaches infinity.

In fact, before the system on page 572 was decided upon, a stochastic model had been fitted statistically to investigate the following questions:

1. Would the classical least square method and the stochastic-simultaneous approach yield substantially different results for the particular problem on hand?

2. Could fluctuations in investment be "explained" by movements of the gross national product and some relevant price levels in a way parallel to the case of consumption?

3. Since the consumers' price index and the wholesale price index are not satisfactory measurements of the "true" consumption and investment price levels respectively,[18] would it be possible to represent the two "true" price levels by some combinations (*i.e.,* weighted averages) of the consumers' and wholesale price indices?

The stochastic model set up is as follows:

$$C = aY + bP + fP_1 + c + u \qquad (6)$$
$$I = dY + gP + hP_1 + i + v \qquad (7)$$
$$Y = C + I + G \qquad (8)$$

The meanings of C, I, Y, P, G, a, b, c, d, and i are given in the text on page 568. In addition, we have:

P_1: Wholesale price index

f: Propensity to consume with respect to the wholesale price index.

g: Propensity to invest with respect to the consumers' price index.

h: Propensity to invest with respect to the wholesale price index.

u, v: Normally distributed random disturbances.

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[17] See Koopmans, *loc. cit.*

[18] See the discussion on pages 567-68 and footnote 12, for the case of the consumption price level. Objections of a similar nature can also be made against the use of the wholesale price level to represent the "true" investment price level.

G, P, and P_1 are considered as exogenous variables. C, I, and Y are determined by the system.

The "reduced form" equations of the above system obtained by correlating Y and C directly with G, P and P_1 are as follows:[19]

$$\underset{(0.671)}{Y = 4.36\ G} + \underset{(0.224)}{0.746\ P} + \underset{(0.232)}{0.490\ P_1} - 82.8 \qquad (9)$$

$$R = 0.97$$

$$\underset{(0.336)}{C = 2.40\ G} + \underset{(0.112)}{0.628\ P} + \underset{(0.116)}{0.235\ P_1} - 4.75 \qquad (10)$$

$$R = 0.98$$

The eight regression coefficients in the above equations provide us with just enough data to solve for the original parameters in equations (6) and (7); the "identification problems" is therefore solved.

From equations (9) and (10), the original structural equations are derived as follows:[20]

$$C = 0.550\ Y + 0.218\ P - 0.0344\ P_1 - 1.98 \qquad (11)$$

$$I = 0.221\ Y - 0.0473\ P + 0.147\ P_1 - 17.0 \qquad (12)$$

$$C + I + G = Y \qquad (13)$$

There is as yet no generally accepted method of calculating the standard errors or confidence limits for the coefficients in the *structural* relations. In view of the high correlation between Y and P_1 and the large standard errors of the regression coefficients of P_1 in equations (9) and (10), the standard errors or confidence limits of the P_1 coefficients in the *structural* equations must be exceedingly large relative to the magnitudes of the coefficients; in all likelihood the standard errors or confidence limits would even exceed the coefficients themselves. This of course means that the estimated influences of P_1 on both C and I are uncertain and reliable. On this ground, P_1 is omitted from both the consumption and the investment functions in the system in the text. Without the P_1 term, the relevance of the P term in the investment function is highly doubtful and is therefore also omitted from that equation. The answer to both point (2) and point (3) on page 580 must thus be in the negative.

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[19] The figures in the parentheses are the standard errors of the respective coefficients. It is unnecessary to estimate the "reduced form" equation for I except for checking purpose, as it can be derived from equations (6), (7), and (8).

[20] In equation (11), the two price terms combined represent an approximation to the influence of the "true" consumption price level on consumption expenditure. The opposite signs obtained merely mean that the positive effects of the "true" consumption price level on consumption expenditure is less than that revealed through the term representing consumers' price index alone (*i.e.*, 0.218P), which difference is adjusted for by the wholesale price term (*i.e.*, —0.0344P_1). Equation (12) should be interpreted similarly. (See point 3 on page 580.) The apparent failure of this attempt is discussed below.

The closeness of the income coefficients in equations (11) and (12) with those in the final system (page 581) indicates that, for the particular problem on hand, the results obtained from the classical least square procedure and the stochastic-simultaneous approach are substantially the same. To save computation complexities, the system in the text is therefore estimated by the classical method. Since the influences of the price terms on investment are uncertain, an obvious alternative for the second independent variable in the investment function would be corporation profits afer taxes; the result is given in the text.

FEDERALISM AND FISCAL EQUITY

By James M. Buchanan*

Fiscal relations between central and subordinate units of government have become an important problem area in the United States during the last two decades.[1] Increasing attention has been, and is being, given to the more practical policy proposals aimed at accomplishing specific short-run objectives. While this may have been necessary, perhaps too little attention has been placed upon the study and the formulation of the long-run objectives of an intergovernmental fiscal structure.[2] This paper seeks to formulate a specific long-run goal for policy and will discuss the advantages which might be expected to arise from its general acceptance.

I

A distinct group of problems immanently arise when a single political unit possessing financial authority in its own right contains within its geographical limits smaller political units also possessing financial authority.[3] These problems become especially important in a federal polity since the financial authority of the subordinate units is constitutionally independent of that of the central government. In a federalism, two constitutionally independent fiscal systems operate upon the fiscal resources of individual citizens.[4]

The fiscal system of each unit of government is limited in its operation by the geographical boundaries of that unit; it can withdraw re-

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[1] The most general survey of the whole field published to date is: U. S. Congress, Senate, *Federal, State and Local Government Fiscal Relations*, Sen. Doc. 69, 78th Cong., 1st Sess. (Washington, Government Printing Office, 1943). Other competent works include: J. A. Maxwell, *The Fiscal Impact of Federalism in the United States* (Cambridge, Harvard University Press, 1946); Jane P. Clark, *The Rise of a New Federalism* (New York, Columbia University Press, 1938); G. C. S. Benson, *The New Centralization* (New York, Farrar and Rinehart, 1941).

[2] One important work in the field is concerned with this aspect. B. P. Adarkar, *The Principles and Problems of Federal Finance* (London, P. S. King and Sons, 1933).

[3] Financial authority may be defined as the power of a governmental unit to collect revenues from contained fiscal resources and to expend such revenues in the performance of governmental functions. *Cf.* Adarkar, *op. cit.*, p. 31.

[4] The individual must deal with three or more fiscal systems, federal, state, and one or more local units. Local financial authority is, however, derivative from that of the state, and for present purposes, the combined state-local fiscal system will be considered as one unit.

sources for the financing of public services only from those available within this area. If the subordinate units are required independently to finance certain traditionally assigned functions, fiscal inequalities among these units will be present unless the fiscal capacities are equivalent. There will be differences in the number and/or the standard of the public services performed for and/or the burden of taxes levied upon the owners of economic resources within the separate units. The nature and the extent of these differences, and the difficulties involved in their elimination, constitute the elements of the over-all fiscal problem of the federal polity.

The situation has grown progressively more acute in the United States. This can be attributed largely to the three following parallel historical trends: First, the continual industrialization, specialization, and integration of the economy on a national scale has tended to concentrate high income receivers in specific geographical areas. Second, there has been an extension of the range of governmental activity at all levels in the political hierarchy. This has required the diversion of greater and greater shares of the total of economic resources through the fiscal mechanism. Third, this extension of governmental activity at the lower levels of government (and in peacetime at the top level) has taken place largely through the increase in the provision of the social services. This when coupled with the type of tax structure prevailing has increased the amount of real income redistribution accomplished by the operation of the fiscal system.

In 1789, a significant share of economic activity was limited to local markets; there was relatively little areal specialization of production. Governmental services were performed predominantly by the local units which were drawn up roughly to correspond in area to the extent of the local markets. Rapid developments in transportation and communication led to an ever-increasing specialization of resources. The economy grew more productive, but the inequalities in personal incomes and wealth increased. This emerging inequality was both interpersonal and inter-regional; expanding individual differences were accompanied by closer concentration of the higher income recipients in the more favored areas. This created disparities among the states in their capacities to support public services.

These fiscal divergencies were not conspicuous, however, until the extension of governmental activity caused the traditional sources of revenue to become inadequate. As greater amounts of revenue were required at all levels, conflicts over revenue sources among state units, and between states and the central government, arose.

The form which the extension of governmental activity took was an important determining factor in making the problem more difficult.

Even with the increasing costs of government, inter-regional disparities in fiscal capacity would not have been accentuated had not the extension taken place largely through the expanded provision of the social services. Had the rôle of government remained "protective," and thus the fiscal system conformed more closely to the benefit or *quid pro quo* principle, richer units would have needed greater governmental expenditures. Only when the "social" state appeared did the divergency between need and capacity become clear. As more government services were provided equally to all citizens, or upon some basis of personal need, the discrepancies between the capacities and needs of the subordinate units arose.

The emerging fiscal problem has been only one of many created by the progressive national integration of the economic system within a decentralized political structure. This development has caused many students to view the political structure as outmoded, and the federal spirit as a thing of the past.[5] The federal polity has outlived its usefulness, and the conditions which made it necessary as a stage in the process of political development no longer prevail.[6] It is true that complete political centralization would resolve the peculiar fiscal problem of federalism. If there were only one fiscal system, as there would be in a unitary form of government, regional differences in standards of public services and/or burdens of taxation would not exist.[7] But political centralization as a proposal for solution is precluded if we accept the desirability of maintaining the federal form. The approach taken in this paper accepts the federal political structure, with the existence of the states as constitutionally independent units sovereign within specified areas. Thus, the problem is reduced to that of formulating a solution within this given framework.

The same problem of fiscal inequality is, of course, present among local units of government within the same state unit. However, the scope for adjustment by non-fiscal means, through political or administrative devices (local government consolidation, state assumption of local functions, etc.), seems broader in state-local relations. The policy proposals stemming from the analysis which follows presume a fixed political structure. But it should be emphasized that both the analysis and the policy implications can be extended to inter-local unit fiscal adjustment as well as to interstate fiscal adjustment. Subsequent discussion will, however, be limited to the latter.

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[5] See Roy F. Nichols, "Federalism vs. Democracy," *Federalism as a Democratic Process* (New Brunswick, Rutgers University Press, 1942), p. 50.

[6] Gordon Greenwood, *The Future of Australian Federalism* (Melbourne, Melbourne University Press, 1946), p. viii.

[7] The proposal for integration and unification of the fiscal systems at different levels has been excellently presented by Professor S. E. Leland. See, for example, his "The Relations of Federal, State, and Local Finance," *Proceedings, National Tax Association*, Vol. XXIII (1930), pp. 94-106.

II

The ideal type adjustment can be presented in reference to the relative fiscal systems of different state units which possess the same fiscal capacity. If all states were approximately identical in per capita incomes and wealth, the burden of taxation upon resources would not necessarily be equal in all. Neither would the general level nor the distribution of public services be equivalent. Some states might choose to tax more heavily and thus provide a higher level of public services than other units equal in fiscal potential. The criterion of comparison must be some balance between the two sides. Both the level of tax burden and the range of publicly provided services must be included. Units of equal fiscal capacity should be able to provide equivalent services at equivalent tax burdens.

An intergovernmental transfer system can be worked out which would allow state units originally unequal in fiscal capacity to provide equal services at equal rates of taxation. The explicit objective of such a system would be the placing of all state units in a position which would allow them to provide a national average level of public services at average tax rates.[8] Immediately there arises the difficult task of determining average rates of taxation and average standards of public service. A more important objection to the statement of the policy goal in this form is that it appears in terms of adjustment among organic state units. Equality in terms of states is difficult to comprehend,[9] and it carries with it little ethical force for its policy implementation. And, is there any ethical precept which implies that states should be placed in positions of equal fiscal ability through a system of intergovernmental transfers?

If the interstate differences in fiscal capacity can be traced through to their ultimate impact upon individuals, and a policy objective formulated in inter-personal terms, it would seem that greater support could be marshalled for interstate fiscal equalization. Any discussion of the operations of a fiscal system or systems upon different individuals or families must be centered around some concept of fiscal justice. And although fiscal justice in its all-inclusive sense is illusory and almost purely relative to the particular social environment considered, there has been contained in all formulations the central tenet of equity in the sense of "equal treatment for equals" or equal treatment for persons dissimilar in no relevant respect.[10] This basic principle has been so widely recognized that it has not been expressly stated at all times, but rather implicitly assumed. Whether or not this principle is consistent with maximizing social utility,[11] it is essential as a guide to the operations of a liberal democratic state, stemming from the same base as the principle of the equality of individuals before the law.[12]

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[8] This is the policy objective of the National Adjustment Grants proposed by the Royal Commission on Dominion-Provincial Relations after a study of the problem in Canada. See *Report of the Royal Commission on Dominion-Provincial Relations*, Book II, *Recommendations* (1940).

[9] See R. McQueen, "Economic Aspects of Federalism: A Prairie View," *Canadian Jour. Econ. and Pol. Sci.*, Vol. 1 (1935), p. 353.

The statement of "equal treatment for equals" as a central principle immediately raises the question of defining precisely the conditions of equality which are relevant in fiscal policy, and more especially intergovernmental fiscal policy. Traditionally, rather objective measures or standards have been accepted, and the divergency between the equality represented in these and subjective or psychic quality has been neglected. Money income and estimated property values in money have therefore been used as the bases for judging individual standing for tax purposes. Some allowance has been made for family size, for income source, and for other differences generating real income effects, but differences in geographical location have not been held to warrant differences in tax treatment.[13] There seems no special reason why intergovernmental fiscal adjustment policy should be set apart in this regard from national government tax policy. Thus, "equals" in the following analysis are individuals equal in those objective economic circumstances traditionally employed in the calculation of national government tax burdens.[14] Through the use of this definition of equals and the adoption of the equity principle, a formal solution to the fiscal problem of federalism can be worked out. This allows the problem to be isolated and separated from the much more difficult one of the distribution of fiscal burdens and benefits among unequals, in which an explicit formulation of "justice" is impossible.

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[10] "Different persons should be treated similarly unless they are dissimilar in some relevant respect." (A. C. Pigou, *A Study in Public Finance* [London, Macmillan, 1929], p. 9.)

[11] If all aspects of equality, including utility or pleasure creation, are included in the definition of "equals," then the principle will be directed toward maximum social utility but will be useless due to the impossibility of application. This would be true because any application would require some inter-personal comparison of utility. Any realistic definition of "equals" must omit subjective attributes of equality; therefore, the application of the principle does not necessarily maximize social utility.

[12] *Cf.* J. S. Mill, *Principles of Political Economy* (Boston, Charles C. Little and James Brown, 1848), Vol. II, p. 352.

[13] Differences in geographical location perhaps cause significant differences in real incomes among particular individuals, but these would seem to be offsetting when large numbers of individuals are considered. If the real incomes of all, or large numbers of, individuals, were increased or decreased by location in particular geographical areas, then these differences would become relevant for fiscal policy.

[14] This analysis does not require any particular set of attributes of equality. All that is required is that geographical location not be included.

III

What is equal fiscal treatment for equals? The orthodox answer has been almost wholly in reference to the tax side alone, the implication being that if tax burdens of similarly situated individuals were identical, the equity criterion would be satisfied. The necessity of including the benefit side of the fiscal account has been overlooked completely in many cases, and understressed in all.[15] The object of comparison should be the aggregate fiscal pressure upon the individual or family, not tax treatment alone. The balance between the contributions made and the value of public services returned to the individual should be the relevant figure. This "fiscal residuum" can be negative or positive. The fiscal structure is equitable in this primary sense only if the fiscal residua of similarly situated individuals are equivalent.

It is next necessary to define the appropriate political structure to be considered in its relative impact on individuals. In a federal polity, the individual has a plurality of political units with which to deal fiscally. Two or more independent fiscal systems act upon his economic resources, subtract from those resources through compulsory taxation, and provide in return certain public services. In this situation, what becomes of the criterion of equity postulated? Each political unit may treat equals equally.[16] If this were done, individuals similarly situated would be subjected to equal fiscal treatment only if they were citizens of the same subordinate unit of government. There would be no guarantee that equals living in different subordinate units would be equally treated at all. Therefore, the principle of equity must be extended to something other than individual governmental units to be of use in solving the fiscal problem of federalism.

The limitation of the application of the equity principle to single fiscal systems within a federal polity can be questioned. It can be plausibly established that the appropriate unit should be the combined "fisc," including all the units in the political hierarchy. The argument can take either or both of two forms.

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[15] For a further elaboration on this and related points, see the writer's, "The Pure Theory of Government Finance: A Suggested Approach," *Jour. Pol. Econ.*, Vol. LVII (Dec., 1949), pp. 496-505.

[16] This requirement has been expressly stated by one student of the problem. "In a democratic society considerations of equity demand that governmental programs *at each level* treat all citizens in similar circumstances uniformly" (italics supplied). (Byron L. Johnson, *The Principle of Equalization Applied to the Allocation of Grants in Aid,* Bureau of Research and Statistics Memo. No. 66 [Washington, Social Security Administration, 1947], p. 88.)

(a) In the United States, the economy, for all practical purposes, is national in scope. In large part, resources are allocated in response to incentives provided in a nationwide market for both final products and for productive services. Goods are sold and equities are traded nationally. The fiscal system represents the political unit in its direct impact upon the economy. Therefore, since the economy is national, the matching political structure must be considered as one unit in its operations upon that economy.[17] If it be accepted that one of the guiding principles in the operation of a fiscal system should be that of "least price distortion,"[18] or least interference with efficient resource allocation consistent with the attainment of other specific objectives, the necessity of this approach becomes clear. The principle of equal treatment of equals is consistent with that of least price distortion only if the "treatment" refers to that imposed by a political unit coincident in area with the economic entity. This is, in the United States, the whole political structure, central and local. For, in a federal structure with economically heterogeneous subordinate units, some interference with the proper resource allocation necessarily arises, unless some interarea fiscal transfers are made.

Fiscal pressures are economic in nature, whether expressed as net burdens or net benefits. If states are not identical in fiscal capacity, the people in the low capacity (low income) states must be subjected to greater fiscal pressure (higher taxation and/or lower value of public services) than people in high capacity states. If "equals" are thus pressed more in one area than in another, there will be provided an incentive for migration of both human and non-human resources into the areas of least fiscal pressures. Resources respond to market-determined economic reward, plus fiscal balance. If the fiscal balance for equals is not made equivalent for all areas of the economy, a considerable distortion of resources from the allocation arising as a result of economic criteria alone might result. The whole fiscal structure should be as neutral as is possible in a geographic sense.[19] An individual should have the assurance that wherever he should desire to reside in the nation, the over-all fiscal treatment which he receives will be approximately the same.

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[17] Accepting this does not imply that the political structure should be one unit as has been proposed. There may be, and in my opinion are, definite values to be gained in maintaining a decentralized political structure. The purpose of this paper is that of showing how this decentralization might be retained while still solving the fiscal problem.

[18] F. C. Benham, "What is the Best Tax System?" *Economica*, Vol. IX (1942), p. 116.

[19] This should not be taken to imply that complete neutrality in this sense could ever be reached. Even with a transfer system worked out along the proposed lines, differences among states would always be present to provide some distortionary effects. In the non-geographic sense, the fiscal structure will, and should, have some distortionary effects, if the whole system is redistributive.

It seems somewhat anomalous that states are forced through constitutional provision to remain parts of a national economy in the market sense and yet are forced to act as if they were completely independent economic units in their fiscal operations. This was recognized by William H. Jones in 1887, when he proposed a system of centrally collected taxes shared equally per head among states.[20] Requiring state areas to remain integrated in the national economy is inconsistent with the forcing of the governmental units of these areas to act as if the economies were fiscally separate and independent. This inconsistency can only be removed by centralization of fiscal authority or by the provision of some intergovernmental fiscal adjustment.

(b) The appropriateness of using the whole political structure as the unit in fiscal equity considerations can be justified in another way. Prior to the impact of the fiscal system, the income distribution arises largely as a result of the payment for resources in accordance with productivity criteria and competitive conditions established on a national basis. The fiscal system is the major means through which this income distribution is redressed toward one which is more ethically acceptable. It follows, then, that the fiscal system, in carrying out this function, should operate in a general manner over the whole area of the economy determining the original distribution. The generality with which the "fisc" can be operated has been held to be one of its important advantages over redistribution methods which entail particularistic or discriminatory interference with the economic mechanism. But unless the fiscal system is considered that of the whole hierarchy this advantage of generality is lost, and the system necessarily operates in a geographically discriminatory fashion.

The application of the equity principle on the basis of considering the whole political hierarchy as the appropriate unit will yield substantially different results from its application on the basis of considering separate governmental units in isolation. If there are subordinate units of varying economic characteristics within the central government area, the equity principle applied to the whole hierarchy will require that the central government take some action to transfer funds from one area to another. Thus, the central government, considered alone, must violate the orthodox equity precept since it must favor the equals residing in the low capacity units. The central financial authority must enter the process and treat equals unequally in order to offset the divergencies in the income and wealth levels of the subordinate units.[21]

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[20] ". . . so long as we persist in applying the principle of autonomous State taxation under Federal forms, and Federal principles of trade and intercourse for purposes of Federal autonomy, the malady will stick to the patient.

This mingling of autonomous State taxes and Federal principles of free interstate trade and citizenship for purposes of Federal autonomy, is contrary to both the letter and spirit of the Federal Constitution." (William H. Jones, *Federal Taxes and State Expenses* [New York, G. P. Putnam's Sons, 1887], pp. 86-87.)

The necessity of assigning this rôle to the central unit in no way implies that the over-all fiscal system be unified in the sense that all financial decisions be made by one authority. Subordinate units should be able to retain complete authority. Neither the tax burdens nor the standards of public service need be equal for "equals" in any of the states. Satisfaction of the equity criterion requires only that the residua be substantially the same.

The policy objective for intergovernmental transfers then becomes one, reduced to individual terms, of providing or ensuring "equal fiscal treatment for equals." If this objective is attained, the individual's place of residence will no longer have a significant effect upon his fiscal position. Persons earning the same income and possessing the same amount of property will no longer be subjected to a much greater fiscal pressure in Mississippi than in New York, solely because of residence in Mississippi.

That a much greater and more effective force can be mustered in support of a transfer system worked out on this basis does not seem open to question. Reduced in this way to a problem of fiscal equity among individuals, the need for inter-area transfers becomes meaningful. Although the results of the working out of such a proposed system would perhaps differ little, if at all, from those forthcoming from a system based upon equalizing the fiscal capacities of the state units, the former carries with it considerable ethical force for its implementation while the latter does not. The ideal of "equal treatment for equals" is superior to that of equalization among organic state units.

IV

The following arithmetical illustration is presented to show how the use of the equity principle can lead to a determinate system of transfers in a simplified model. Assume that in a hypothetical federal government, X, there are two states, A and B. The total population of X is six citizens, with three residing in each state. Their names are A-1, A-2, A-3, B-1, B-2, B-3. The economic characteristics of X are such that in A, two skilled workers and one unskilled worker can be employed, while in B, one skilled worker and two unskilled workers can be employed. Differences in the natural abilities of the six men are such that only three are equipped to do the skilled work, A-1, A-2, and B-1. The other three must do unskilled work. There are no non-pecuniary advantages to employment in either state. The six men are substantially similar in all other respects. The relative money incomes for the two groups are $10,000 per year for the skilled workers, and $1,000 per year for the unskilled. Therefore, A has two citizens receiving $10,000 and one receiving $1,000, while B has one $10,000 man and two $1,000 men.

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[21] "The position that the federal government would occupy in the scheme is that of filling in the gaps of unevenness as between one state and another." (Adarkar, *op. cit.*, p. 195.)

Let it be assumed further that the central government imposes a progressive income tax amounting to 10 per cent of the higher incomes and 5 per cent of the lower incomes. All of its revenue is derived from this source. States A and B impose proportional taxes at the rate of 10 per cent on incomes. All their revenue is derived from this source. The tax liability of each of the citizens then is as follows:

Name	*Collected by X*	*Collected by A or B*	*Total*
A-1	$1,000	$1,000	$2,000
A-2	1,000	1,000	2,000
A-3	50	100	150
B-1	1,000	1,000	2,000
B-2	50	100	150
B-3	50	100	150

It can be easily seen that if tax liability alone is considered, the overall fiscal structure is equitable in the primary sense. Equals are treated equally. But if both sides of the fiscal account are included, glaring inequities in the treatment of equals appear.

Now, let it be assumed that both the central government, X, and states A and B, expend funds in such a manner that all citizens within their respective jurisdictions benefit equally from publicly provided services. The central government collects a total of $3,150 and when expended each citizen gets a value benefit of $525 from services provided by that unit. State A collects $2,100 from its three citizens, and each gets in return a value benefit of $700 from public services provided by A. State B collects $1,200, and each citizen thus receives only $400 in value benefit from public services provided by B. The final fiscal position of each of the citizens is represented in the following:

Name	*Total Taxes*	*Total Benefits*	*Fiscal Residuum*
A-1	$2,000	$1,225	$ 775
A-2	2,000	1,225	775
A-3	150	1,225	— 1,075
B-1	2,000	925	1,075
B-2	150	925	— 775
B-3	150	925	— 775

B-1 is taxed at equal rates with his equals, A-1 and A-2, by both the central government and the state, and receives the same benefits from the central unit, but he receives $300 less in benefits from his state. His fiscal residuum is $1,075 (taxes over benefits) as compared with $775 for his equals. Likewise, the fiscal residuum of B-2 and B-3 is a negative $775 (benefits over taxes) while that of their equal, A-3, is a negative $1,075.

If a transfer of $200 were made among the set of high income equals in this model, from State A to State B, thus reducing the residuum or net tax of B-1 by $200 and increasing that of A-1 and A-2 by $100 each, then each of this group would end up with a residuum of $875. A further transfer of $200 from A-3 to B-2 and B-3 would equalize the negative residua of the low income equals at $875. Thus, a total transfer of $400 from A to B would enable the equals to be placed in identical fiscal positions.

This model presents the use of the equity principle in its most favorable abstraction. Certain major qualifications must be made if the principle is to be universally applicable even in such structurally simple models. In the above model, both state units imposed taxes at the same flat proportional rate and distributed benefits equally per head, while the central government imposed progressive tax rates and distributed benefits equally among its citizens. It is necessary to examine these conditions and trace through the effects of possible changes upon the results. First of all, it can be shown that the central government acting alone can vary the progressiveness or redistributiveness of its fiscal system (either on the tax or expenditure side, or both) without in any way affecting the resulting transfer total.[22] This is, of course, due to the fact that the central government system, in principle at least, treats equals equally, and thus no action carried out by this system alone would affect the existing inequalities among equals.

Second, it can be shown that the transfer total is not changed by a simple increase (decrease) in the desires of the citizens of one state for public services. The result will be changed only if, in the process of providing the increased (decreased) services, the redistributiveness of the state fiscal system is affected. For example, either of the states in the above model, desiring to provide additional services, could levy

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[22] This can be illustrated by changing the above model to one in which the central government collects all its tax revenues from the three high income receivers. The resulting individual fiscal positions are then as follows:

Name	*Total Tax*	*Total Benefit*	*Residuum*
A-1	$2,050	$1,225	$ 825
A-2	2,050	1,225	825
A-3	100	1,225	− 1,125
B-1	2,050	925	1,125
B-2	100	925	− 825
B-3	100	925	− 825

It can be seen that a transfer of $400 will again place equals in identical fiscal positions. Absolute differences among equals have not been changed by the increase in the progression of the central government tax structure. It will be noted, however, that the fiscal positions of the citizens of B have been improved relative to those of A's citizens.

equal per head poll taxes of any amount without changing the required transfer total at all.

This is not the case, however, when the amount of redistribution carried out in the operation of either or both of the state fiscal systems is changed. Such a change can be carried out by shifts in the allocation of tax burdens or benefits among the different income classes, or through altering the total amounts of economic resources entering the fiscal systems. The limiting case is that in which neither state system is at all redistributive, both operating on purely benefit principles.[23] In this case, each individual receives in value benefits the equivalence of contributions made, *i.e.,* has a zero residuum. Thus, whatever the income differences among the units, equals are equally treated, and no required transfer is indicated. Thus, it can be stated that as the fiscal system of either of the state units is shifted more toward operation on a benefit basis, *i.e.,* is made less redistributive, the required transfer between the high income state and the low income state is reduced. Conversely, as either system is made more redistributive, a greater transfer is necessary to satisfy the equity criterion.[24] This dependence of the resulting transfer total upon the redistributiveness of the state fiscal systems creates difficult problems in the use of the principle as a direct guide for policy. Since a state unit can by its own action in shifting its internal fiscal structure affect the amount of funds transferred to or away from that state, the practical working out of the transfer system would make necessary some determination of a standard state fiscal structure as the basis for calculation.[25] It is also noted that the

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[23] A special form of this limiting case is that in which neither state levies taxes or provides public services.

[24] These effects can easily be seen by imposing changed conditions in the original model. Assume now that State A, instead of levying proportional tax rates, adopts a progressive income tax which increases the tax burden on its high income citizens, A-1 and A-2, to $1,050 each, and reduces the tax burden on A-3 to zero. Assume that the distribution of benefits in both states and B's tax rates remain the same as before. The fiscal positions then are as follows:

Name	*Total Taxes*	*Total Benefits*	*Fiscal Residuum*
A-1	$2,050	$1,225	$ 825
A-2	2,050	1,225	825
A-3	50	1,225	—1,175
B-1	2,000	925	1,075
B-2	150	925	— 775
B-3	150	925	— 775

In this model, a transfer of $166.67 among the three high income individuals, and $266.67 among the low income individuals is required, or a total of $433.34, as compared to the total of $400 before the change in A's tax structure was made.

[25] Applied to the existing structure in the United States this would not present serious difficulties since various state fiscal structures are substantially similar both on the tax and the expenditure side.

transfers are among equals; bloc transfers among states will satisfy the equity criterion only if made in a specific fashion. These and many other more technical problems make a precise application of the equity principle in the real world extremely difficult, but should not serve to prevent its use as a proximate standard for intergovernmental fiscal policy.

A specific type or method of intergovernmental fiscal adjustment is suggested from the above analysis. This is geographically discriminatory central government personal income taxation. Central government income tax rates could be made to vary from state to state so as to offset differences in state fiscal capacities.[26] This method of adjustment, by varying personal income tax rates among equals, could come closest to achieving the equity goal. In effect, it would limit the transfers to those among "equals." In the first model above, central government taxes on A-1 and A-2 would be increased from $1,000 to $1,100, while those on B-1 would be reduced from $1,000 to $800. Central government income taxes on A-3 would be increased from $50 to $250, while those on B-2 and B-3 would be reduced from $50 to a negative tax of $50.

Adjustment through the central governmental personal income tax system has another major advantage in that it allows the necessary inter-area transfer of funds to take place without any necessary increase in the total amount of federal revenue. This is an important feature in this era of big central government. Any other transfer method, either in the form of grants to states or geographically discriminatory central government expenditure, requires, initially at least, that a greater share of economic resources be diverted to flow through the central government fiscal mechanism. A further advantage of this adjustment system is that it does not conflict with either the revered principle of financial responsibility or that of state fiscal independence, both of which are so often encountered in discussions of grant-in-aid policy.[27]

Geographically discriminatory personal income taxation by the central government probably would, however, have to hurdle a very significant constitutional barrier before coming into existence in the United States. The courts have held repeatedly that the constitutional uniformity of taxation required was geographical in nature.[28] Although accomplishing the same purpose as a system of positive revenue transfers, this method would appear more violative of traditional, though erroneous, equity precepts.[29] A more practical objection to this method is that individuals probably respond more quickly to tax burden differentials (especially direct taxes) than to differentials in public service standards. Therefore, if income tax rates vary from state to state in some direct correlation with per capita incomes, even though the system of rates were calculated so as to provide exact equality (to equals) in all states in over-all fiscal treatment, there might still be distortionary resource allocative effects due to this "tax illusion."

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[26] Adarkar included both geographically discriminatory central government taxation and geographically discriminatory central government expenditure as appropriate adjusting devices. (*Op. cit.*, p. 195.)

[27] See the following section.

[28] See *Head Money Cases* 112 US 580; *Knowlton* v. *Moore* 178 US 41; *Flint* v. *Stone Tracy Co.* 220 US 107.

Any method of adjustment which involves the federal collection of revenue and subsequent transfer to state governmental units via specific or bloc grants is inferior to the tax adjustment method in so far as the equity criterion alone is considered. A system of grants based upon the equity principle could do little more than utilize the Canadian proposals. States could be placed in a position to treat citizens in the same manner fiscalwise as their equals in all other states. But states would not necessarily, or probably, choose to do so. Differences in the allocation of both burdens and benefits would be present. Nevertheless, the resultant inequities in the treatment of "equals" would be due to state political decisions, not to the fact that citizens were resident of the state *per se*. The differences in the treatment of equals could be reduced to insignificance in comparison to those now present.

V

The mere acceptance of the equity principle in discussions concerning the fiscal problem of federalism can yield important results. First of all, upon its acceptance inter-area transfers do not represent outright subsidization of the poorer areas, do not represent charitable contributions from the rich to the poor, and are not analogous to the concept of ability to pay in the inter-personal sense. The principle establishes a firm basis for the claim that the citizens of the low income states within a national economy possess the "right" that their states receive sums sufficient to enable these citizens to be placed in positions of fiscal equality with their equals in other states. A transfer viewed in this light is in no sense a gift or subsidy from the citizens of the more favored regions. It is no more a gift than that made from the citizens of the community property states to those of the non-community property states when income splitting for tax purposes was extended over the whole nation to make the federal tax system more equitable. After the proposed inter-area transfer of funds, relatively greater fiscal pressure would be imposed upon citizens of the high income areas and relatively less upon those of the low income areas in comparison to those now imposed. But tradition gives little ground for continuing inequities, and we normally give short shrift to the individual who has continued to escape a share of his fiscal burden.

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[29] The apparent anomaly here can be attributed in large part to the doctrinal errors made in economic and fiscal theory which have caused the expenditure side to be treated as a less important area of study than the tax side. Differing rates of federal taxation in different states would probably be declared unconstitutional. Arbitrarily differing amounts of federal expenditures per capita among states are not questioned.

The policy implications of adopting the equity principle as a long-run goal for adjustment policy are far reaching. Applied to the existing structure of intergovernmental fiscal relations in the United States, several steps are indicated. *First,* the elimination of the many matching provisions in the present grant-in-aid program is essential before progress can be made in any equalization policy. These provisions have served to prevent the whole grant-in-aid system from accomplishing any fiscal equalization between the rich and poor areas at all.

A *second* and major implication is that the equity approach provides a justification for inter-area transfers independent of any particular public service or group of services. In the past, the principle of fiscal need has been combined with the principle of national interest with the result that grants have been justified only in specific service areas (highways, vocational education, etc.). There is, of course, legitimate justification for federal grants to states with the objective of furthering certain national interests, for example, minimum standards in educational services. But such grant-in-aid programs should be sharply divorced from the basic equalization policy. It seems highly probable that, if an equalization policy of the sort proposed here were carried out, national interests would be adequately served without any national government direction of state expenditure. The low income states provide deficient educational standards largely because of their fiscal plight; remove this, and it seems likely that their service standards would approach those of other states without any restraints upon state budgetary freedom. The acceptance of the equity objective, therefore, could lend support to a policy of broadening the functions for which grants are made, and of extending broadened conditional grants to other public service areas.

Ultimately, an essential step, if equalization is to be carried out *via* grants to states, and one which will not be easy to accomplish, is the elimination of directional conditions entirely in federal grants to states and the substitution of unconditional grants. The equity principle provides an adequate justification for grants wholly unconditional, but traditional barriers against the unconditional intergovernmental transfer of funds, especially in the United States, are likely to loom large. The principle of financial responsibility which says, in effect, that "legislatures can be trusted to spend if required to tax accordingly,"[30] and not otherwise, is strong and has certain intrinsic merit when considered in isolation. But as is the case with the traditional principle of equity, the substitution of a federal political structure for a unitary one transforms the setting within which the principle may be applied. The fact that the central government must enter the adjustment process and transfer funds to effectuate equity in the over-all fiscal system does not therefore imply that the central government should be allowed to direct the recipient states in the allocation of their expenditure. There seems no apparent reason why there should be more central interference or direction in the financial operation of the recipient states than in that of the non-recipient states. States are made claimant through no fault of their own or of their respective citizens. They are made claimant by the income distribution arising from a resource allocation and payment in a national economy. Once it is recognized that the transfers are adjustments which are necessary to coordinate the federal political structure with a national economy, and as such are ethically due the citizens of the low income state units, then the freedom of these citizens to choose the pattern of their states' expenditure follows.

This concept of financial responsibility is, however, so strong that progress will perhaps require some compromise with it. Substantial progress can be made in intergovernmental transfer policy by the gradual substitution of procedural for directional conditions. Movement in this direction can be made while observing the fiscal responsibility principle and still not greatly reducing the budgetary independence of the states.

However, as pointed out above, these problems which arise in any intergovernmental policy utilizing revenue transfers, disappear when the method of geographically discriminatory personal income taxation is adopted. No governmental unit receives revenue other than what is internally raised within its fiscal system; therefore, neither the principle of financial responsibility nor that of state fiscal independence is violated. This method of adjustment, however, can only be expected to become positive policy after there is a more widespread recognition of the basic elements of the fiscal problem of federalism, and the advantages of this method over others clearly impressed upon the public by competent authorities.

[30] Henry C. Simons, "Hansen on Fiscal Policy," *Jour. Pol. Econ.*, Vol. L (1942), p. 178.

VI

The fiscal problem of federalism discussed here is not likely to become less acute. As the need for an ever-expanding scope of public services increases, with especial emphasis on the social services, the divergencies in fiscal capacities among state units will be more evidenced. The *laissez faire* result will be the ultimate centralization of a large share of effective political power, either directly through the assumption by the central government of traditional state and local functions, or indirectly through restraining financial conditions in an expanded grant-in-aid system. Therefore, those who desire to see maintained a truly decentralized political structure in the power sense, must take some action in support of proposals aimed at adjusting these interstate fiscal differences. Heretofore, little progress has been made, although increasing attention has been given to the problem. The failure to take positive steps may, in part, have been due to the lack of a specific long-run objective for policy. The equity principle presented here possibly offers an objective which, if accepted, can serve as the basis for the development of a rational intergovernmental fiscal adjustment system.

COMMUNICATIONS

The Council of Economic Advisers and Depression Policy

As war prosperity brought an end to the worst depression in history, there was general agreement that preparations should be made to prevent a similar disaster in the future. Even the wartime government of Great Britain, despite its basically Conservative character, accepted "as one of their primary (postwar aims) and responsibilities the maintenance of a high and stable level of employment" in the 1944 White Paper on Employment Policy. In the United States, the same movement led to the passage of the Employment Act of 1946, with its obligation "to promote maximum employment, production, and purchasing power." Although one of the things to be contained in the Economic Report of the President provided for by the Act is a review of economic conditions "during the preceding year," there is nothing else in the Act which specifies the *period* to which recommendations are to apply. But I believe that most economists have from the start felt that the basic function of the Council was to prevent serious depressions such as that which struck us in 1929. In any event, in my judgment this is the basic *raison d'être* of the Council and its fundamental responsibility.

The latest Annual Report of the Council of Economic Advisers again demonstrates that this responsibility has not been met and that we lack even minimum preparations for a serious depression.[1] This lack does not appear to arise from any underestimate of the harm that a serious depression could do, for the report states that "another depression even more devastating (than that of the 1930's) . . . could unleash forces of social tension, domestic friction, and pure political adventuresomeness which might leave us for a time without the essence of free government."[2] But why, then, does the report provide us with so little evidence of preparations against so serious a possibility?

The full answer is obviously complex, but I suspect that an important clue is the fact that the Council apparently favors underconsumption, in the sense of believing that a change of a few percentage points in the distribution of the national income is likely to make a substantial contribution to stabilizing economic activity. All the reports of the Council have been fascinated with the proper "economic balance between investment and consumption which is essential for a high level of general activity."[3] The 1949 *Annual Economic Review,* for example, after noting that consumers were receiving only 70 per cent of the gross national product in 1948 compared with 76 per cent in 1929, states that "it is felt that final consumers should absorb at least 75 per cent of all goods and services within a few years."[4] Even in 1949 there was recognition that the effects of redistribution are not simple, as the *Review* warns that price-wage adjustments "require the drawing of some very delicate lines. It is not easy to determine the exact point at which price decreases which increase sales become price decreases which impair business confidence or income and thus reduce production. It is not easy to determine the exact point at which wage increases which add to purchasing power become deflationary because they add too much to costs."[5] The 1950 *Review,* moreover, is much concerned over whether these relationships are cause or result of cyclical swings, but is only able to conclude that "Expenditures are mainly although not wholly determined by income, and the excessive variation in our levels of general economic activity have also been closely associated with income relationships which were not sustainable and therefore were subject to excessive periodic change."[6]

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[1] *Business and Government,* Fourth Annual Report to the President by the Council of Economic Advisers, December, 1949.

[2] *Ibid.*, p. 2.

[3] *Annual Economic Review* (published with the *Economic Report of the President,* January, 1950), p. 99.

Undoubtedly influenced by these difficulties, the 1950 *Review* makes clear that the Council's studies of the proper relationship between consumption and investment are still "preliminary" and "exploratory," though it hopes "that eventually they may develop into useful guides."[7] In fact, percentages are no longer used, but rather a range of absolute numbers. If we translate these into percentages, we find that they vary from 70 per cent to 72.6 per cent for the year 1954, compared with 69 per cent in 1949 and 68 per cent in 1948.[8] In short, it seems fair to conclude that the Council currently believes that a substantial contribution to permanent economic stability would be made if the percentage of the gross national product going to consumers at full employment were to increase over the next five years 2 or 3 percentage points above the 1948 level and 1 or 2 percentage points above that of 1949. Note that the *Review* stresses that "these estimates present objectives for an economy of maximum employment and production. This means that affirmative policies, both public and private, will be needed to achieve them; they are not *forecasts* of developments which will occur inevitably."[9]

Obviously if a substantial contribution to a stable future could be made by an annual shift over the next five years of a third to a half of one per cent in the proportion of the national income going to consumption, then the Council might be justified in doing little to prepare for a serious depression. In fact, if I believed that so small a change would make a substantial contribution to stability, I would be even more optimistic than the Council. For I think it would not be particularly difficult to devise changes in our tax structure to bring about the desired results. But despite the importance attached to proper balance, the Council appears unclear as to how it can be achieved. The Council, and especially Mr. Keyserling, has at times flirted with the idea that representatives of business, labor, agriculture, and consumers should get together and determine what is proper, presumably under the guidance of the Council when its exploratory studies have turned up the right answers. But the latest Report seems to reject this approach, concluding that the phase of promoting economic balance involving the proper adjustment of wages, prices and profits "should be left to the actions of managers and workers within our business system itself."[10] This, if I recall aright, is where the balance was determined in 1929, so that this conclusion seems to me rather alarming.

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[4] *Annual Economic Review,* January, 1949, p. 61. Actually the 1948 percentage was only 1 1/3 percentage points below that for 1929 for the non-governmental portion of the gross national product.

[5] *Ibid.,* p. 75.

[6] *Annual Economic Review,* January, 1950, p. 83.

[7] *Ibid.,* p. 85.

[8] The percentages were calculated on the assumption that extreme values of gross national product and personal consumption expenditure should be paired. The difference between the 68 per cent for 1948 in the 1950 *Review* and the 70 per cent used in the 1949 *Review* was mainly the result of the revision in the interim of the Commerce income series.

[9] *Ibid.,* p. 85.

One of the reasons why its conclusion does not appear to worry the Council is their belief that the 1949 recession was mild because "Many business men realized that we were working our way toward a better 'balance,' and that if they maintained steady nerves through a short but perilous phase, the fundamental strength of the economy would turn us again upward. This does much to explain what transpired during the second half of 1949."[11] Keyserling himself has been quoted, in an even more optimistic vein, as saying that "the factors that led to the mild recession in the first half of 1949 would have caused a major depression in any previous era."[12]

An appraisal of the to me fantastic optimism of the Council regarding the significance of the 1949 recession requires a brief discussion of business cycles, which I shall keep short by making some heroic simplifications (of the sort calculated to horrify all denizens of the National Bureau). From the point of view of economic fluctuations, I suggest that there are four strategic areas of the economy: inventories, durables, business construction, and housing. The severity of any cycle is largely determined by the number of these areas which are unfavorable. Thus in 1924 and 1927, and probably 1934, the setbacks were largely inventory adjustments; in 1937, and to some extent 1920-1921, both inventories and durables turned down sharply but construction and housing remained favorable; while in 1929 everything was unfavorable. Now on this basis 1949 was a practically perfect example of an inventory cycle. For the Council's own figures make clear that the change from a $9 billion increase in inventories to a $1.5 billion decrease accounted for $10.5 billions of the $13 billion decrease in gross private investment, which in turn was responsible for almost all of the $15 billion decrease in gross national product.[13] If one is interested in minimizing an inventory adjustment, there is much to be said for timing it so that it coincides with the highest production level ever attained for housing and automobiles (the single most important durable in our economy). But there is even more to be said for coupling an inventory reversal of $10.5 billions with a shift from a governmental cash surplus of more than $7 billions to a deficit of $3 billions.[14] I find it hard to conclude that businessmen's improved knowledge of what constitutes a proper economic balance had much to do with the mildness of the recession in 1949 or that the mildness is any cause for optimism regarding the future.

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[10] *Business and Government*, p. 12.

[11] *Ibid.*, p. 9.

[12] *New York Times*, March 11, 1950, p. 1.

[13] *Annual Economic Review*, January, 1950, p. 48.

Actually, in January, 1949 the Council advocated the imposition of additional taxes "to result in an increase of at least $4 billions" of revenue, and it was not until July that the Council officially ceased to favor the increase, by which time $9.5 billions of the $10.2 billion change from surplus to deficit had occurred.[15] It seems hard to deny that, as events turned out, the failure of Congress to heed the advice of the Council probably by itself had more to do with the mildness of the depression than businessmen's improved economic knowledge. Nor is this the first time that the Council has found it hard to call the short-run turn; the 1947 Report was worried about depression when the problem was inflation quite as much as the 1949 Report was worried over inflation when the problem was recession. Certainly the record of the Council compares unfavorably with that of the Federal Reserve Board. Hence, I think the conclusion is amply justified that the Council would substantially strengthen its position if it devoted relatively less attention to short fluctuations in general and inventory cycles in particular and far more attention to major depressions, where the problem of exact timing is likely to be less important.

Obviously this does *not* mean that the Council should refrain from making proposals for the short run; for just as in the long run we are all dead, so must all policies be applied in the short run, even those designed to deal with serious depressions. The basic question is how *detailed* should the *public* advice of the Council be. I do not believe that the Council added to its prestige by contending in January, 1949 that at least $4 billions of additional taxes were required on "general economic grounds."[16] This is so not only because we simply do not know enough to have such precise answers, but also because such detail places the Council deeply in day-to-day party politics. There is clearly room for differences of opinion as to how "political" the Council should be, but we should face the fact that, if the Council is closely identified with the program of a particular party, the temptation to subordinate economic analysis to political expediency will be very great. In the 1949 case, for example, I suspect that an important factor retarding recognition by the Council of the change in economic circumstances in the first half of the year was the need to wait until the President found it politically possible to withdraw his request for tax increases. In short, given the difficulty of making economic predictions in general and the relatively poor record of the Council thus far, a shift in emphasis from the next few months to the next few years seems highly desirable.

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[14] *Ibid.*, p. 136.

[15] *Annual Economic Review*, January, 1949, p. 38; January, 1950, p. 106. The figures for the change from surplus to deficit are in terms of annual rates.

[16] *Annual Economic Review*, p. 38.

Just how little has the Council done in pushing preparations for a serious depression? Usually it is not easy to document the *absence* of a program, but when I recently suggested that the Council had done very little, I was told by a staff member that I should look at the United Nations questionnaire on the maintenance of employment, the reply to which was largely prepared by the Council.[17] Question 5, in summary, asks about *policies* designed to prevent future depressions and the extent to which *automatic economic stabilizers* are available. The United States reply to the first part of this question is that the anti-inflation program in the short run and the development of our resources in the long run should stabilize the economy. Our automatic economic stabilizers are listed as: government expenditures in general; unemployment benefits and other social security measures; the government farm price support program; and taxation. Note that none of these can exactly be described as resulting from the work of the Council, despite the fact that, in my judgment, preparation for a serious depression is the basic *raison d'être* for the Council. But the questionnaire goes on to ask, in Question 7, what programs and provisions are available to offset unemployment if it should develop as a result of a deficiency in effective demand. The first paragraph of the United States reply is worth quoting in full:

> Other than those mentioned in answer to question 5, there are no programs and provisions available under existing statutes to offset future unemployment. The Employment Act of 1946 established machinery and procedures for dealing with the threat of unemployment but did not prescribe any specific program, nor has any subsequent legislation authorized any such program for the economy as a whole.[18]

In short, so far as specific programs go, we are fully prepared to improvise!

I do not see how anyone can contend that a serious depression in the next decade is so unlikely that this is good enough.[19] Certainly the cost and effort involved in making proper plans are trivial when failure to do so may well endanger the continuance of our present economic system. Yet beyond the change in the proportion of income going to consumption already discussed, the Council seems to have little to offer except general advice to business to concentrate on long-run progress rather than short-run fluctuations—advice which the Council would do well to heed! Measured against what is needed, I cannot help feeling that the preparations for which the Council is *itself* responsible will *by themselves* be about as adequate as the slogan "Forward America! Nothing Can Stop You!" with which the Chamber of Commerce plastered our billboards in 1931 just as the economy went into the most rapid decline of the entire depression.

HENRY H. VILLARD*

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[17] *Maintenance of Full Employment*, United Nations, July 1949.

[18] *Ibid.*, p. 43.

[19] Should the Korean war (which broke out after the completion of this article) continue or spread, a serious depression will, of course, be postponed; but frequent major wars are hardly a satisfactory way of preventing business cycles.

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The Dynamics of Price Flexibility[1]

Comment

T. C. Schelling in a recent article in this *Review* has argued that price flexibility may eradicate unemployment by first intensifying a bad situation and then making prices and wages fall so far that full employment is ultimately restored. This is a striking conclusion and one which, even if correct, would be open to considerable misinterpretation at the policy level. But Mr. Schelling's argument does not stand up under close analysis. Mr. Patinkin, in another communication to this *Review,* has accepted some of the properties of Schelling's system and then shown how arbitrary assumptions as to remaining properties of the basic relations are vital in obtaining the results. I should like to review Schelling's argument from yet another point of view.

Schelling's procedure may well be termed model building with a vengeance. In arguing from theoretical models, the analyst must, among other things, define terms carefully, reveal the substance lying behind the relationships used, and tie the argument together with no loose ends. On these grounds, I find much to criticize in Schelling's scheme and in attempting a rigorous reformulation conclude that his argument contains but a grain of truth.

Since Schelling restricts himself to a two-dimensional graphic exposition, he reduces his model to two equations, one relating the rate of wage-price decline to unemployment and the other relating unemployment to the wage-price level and the rate of wage-price decline. What can be the meaning of a variable called "wage-price"? Is it the wage rate; is it the price level; is it the real wage rate; or what is it? I certainly would not be satisfied with the argument that wages and prices are proportional so that one may be substituted for the other freely. The ratio between wages and prices, in standard theoretical schemes, depends on employment, utilization of capital, or other things that are highly variable.

In describing the function relating unemployment to "wage-price" and "wage-price" decline, Schelling first claims that it can be derived from an analysis of the saving and investment function. He writes: (. . . We may, to fix ideas, think of the absolute price level as determining the height of the savings function and the rate of price change as determining the height of the investment function.) While income, or employment, depends only on price, it depends on two aspects of price: the level itself and its rate of change" (p. 914). Many jumps in reasoning are taken here that I should like to see spelled out. What kind of evidence leads to this savings function whose height depends on the absolute price level? Similarly, how is it that the height of the investment function is determined by the rate of price change? How do these absolute price variables become "wage-price"? How does income become employment, and how does employment subsequently become unemployment? I do not see how savings and investment functions of any acceptable type are going to lead to a relation between unemployment, "wage-price," and "wage-price" change.

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[1] T. C. Schelling, "The Dynamics of Price Flexibility," *Am. Econ. Rev.*, Vol. XXXIX, No. 5 (Sept., 1949), pp. 911-22.

Schelling next uses concepts of dynamic equilibrium, static equilibrium, and dynamic stability. The definition of static equilibrium is well defined in the literature but the other two concepts have no meaning unless Schelling provides his readers with some rigorous definitions. I find his casual literary statements about these concepts far too vague. Associated with the concept of dynamic stability, Schelling develops a footnote in which he states that the relation considered previously between unemployment, "wage-price," and "wage-price" change is only a special case of a more general relation in which the rate of change of unemployment is made a function of the difference between unemployment and its function value (depending on "wage-price" and "wage-price" change). The more general equation is not even given the most superficial derivation, and I am very suspicious of it. Recall that the analysis is confined to the labor market and is two dimensional with unemployment and "wage-price" being the fundamental variables. One of the equations can be viewed as a market adjustment equation showing how the price of labor fluctuates with respect to excess supply (= unemployment). I feel that there is a good theoretical and empirical basis for such a relation, although the price variable must be well defined. But how does the generalized version of the other equation come about? In the pages below, I shall try to give some meaning to the special case which Schelling originally derived from the savings investment analysis, but I cannot see room for another adjustment equation in the labor market which would be represented by the generalized version. Whose behavior is reflected by this equation which is not already reflected in the other equation of adjustment in the labor market? This is the dangerous point of Schelling's approach. One cannot simply build tricky models that have solutions in some mathematical sense and then claim automatically to have a representation of economic behavior. Each equation must be capable of being derived from some set of first principles and identified with the economic behavior of units that make up the system. Models built on the basis of anonymous relations or contradictory relations are thoroughly unacceptable. Schelling's model need not be contradictory from some pure mathematical point of view but it is, in the sense that the same set of economic agents is supposed to adopt two different patterns of behavior in adjusting the market to clear away excess supply or demand.

There is also a bothersome point of notation in Schelling's article. He denotes the time rate of change of a variable by attaching a prime to it. In every case except one, the prime denotes a positive rate of change. The "wage-price" variables, P, and P′, are however associated by the relation

$$P' = \frac{-dP}{dt}.$$

I shall now turn to the problem of price flexibility in relation to unemployment for a model derived from accepted theoretical or empirical frameworks and in which Schelling's main point about expectation effects prevails.

Since Schelling restricts himself to a two-dimensional analysis, I will try to produce his grain of truth from an analysis which must, of necessity, be partial. If the theory were to be general and not partial, then we cannot expect to obtain the types of equations he uses.

There is first a relation between the level of unemployment and the rate of change of wages. This may be called a dynamic excess-demand equation, a wage determination equation, or an adjustment equation in the labor market. It is based on the "law of supply and demand" which states that the price of a good falls when supply exceeds demand and rises when demand exceeds supply. It is altogether common in the literature, although it is not always made clear whether absolute or relative prices vary in response to excess supply. Market bargaining is done, however, in terms of *absolute* prices. I shall write it as

$$(1)\ \dot{w}_t = \alpha_0 + \alpha_1 u_t,\ \alpha_0 > 0,\ \alpha_1 < 0,$$

where $\dot{w}$ = rate of change of wage rate; u = unemployment. In classical theory, $\alpha_0 = 0$ so that there is no obstacle to a full-employment equilibrium; however, I regard $\alpha_0 > 0$ as a cornerstone of the modern dynamic theory of employment and, in addition, can cite empirical work in support of this contention.[2] This relation, like the others I shall deal with, is linearly approximated since I feel that there is no need to go into higher order approximations in order to bring out the essence of the arguments; moreover, I know that I am on safe empirical ground in the linear case. As a final remark concerning (1), I must emphasize that I am restricting myself to Schelling's two-dimensional approach and look upon this equation as a simple approximation which omits other variables, especially $\dot{p}$, the rate of change of prices. The presence of both $\dot{w}$ and $\dot{p}$ in (1) can be justified on the basis of a generalized theory of market adjustment equations which views each excess supply as a function of the rates of change of several price variables. A better empirical approximation will be found to follow this approach.[3]

The current demand for labor can be expressed as a function of the prevailing wage rate and that expected to prevail in the future. This formulation allows for substitution between current and future labor demand, which is essential for discussing the effect of wage cuts on expectations and employment. Other variables should also be in this equation (the price level, for example) but I am forced to neglect them in the two-variable case. The demand equation is

$$(2)\ n^d_t = \gamma_0 + \gamma_1 (w_\tau - w_t) + \gamma_2 w_t,\ \tau > t,\ \gamma_0 > 0,\ \gamma_1 > 0,\ \gamma_2 < 0.$$

The constant term is an extremely large number; it shows the hypothetical demand for labor at zero wages (current and future). In the linear approximation, I shall regard this as a large constant, but in a profit-maximizing equation derived from the Cobb-Douglas production function, it would be infinite (production elasticity assumed less than unity). The other inequalities are self-evident.

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[2] See L. R. Klein, *Economic Fluctuations in the United States, 1921-1941* (Wiley, forthcoming), Chap. III, equations (3. 4. 9).

[3] See, *e.g.*, C. Christ, "A Revised Klein Econometric Model for the United States, 1921-1947," paper prepared for the Universities-National Bureau Conference on Business Cycle Research, 1949.

The expectations assumed in Schelling's problem can be expressed linearly as

$$(3)\ w_\tau = w_t + \delta \dot{w}_t,\ \delta > 0.$$

It says that the wage rate expected to prevail at period $\tau > t$ will go down from the prevailing wage rate at the rate δ if wages are falling at time t and will rise from the prevailing wage rate at the rate δ if wages are rising at time t.

The supply of labor will be written as

$$(4)\ n^s_t = \epsilon_0 + \epsilon_1 w_t,\ \epsilon_1 > 0.$$

Little can be said about ϵ_0, except that it is *not* a large positive number. In a linear approximation it is best to regard it as somewhat negative. It is not essential to introduce the expectation effect in (4), and there are numerous institutional reasons why it probably does not belong there. As in the other equations, I have omitted additional variables that generally find a proper place in determining supply behavior in the labor market.

I shall combine (2), (3), (4) into

$$(5)\ n^s_t - n^d_t = u_t = \beta_0 + \beta_1 \dot{w}_t + \beta_2 w_t,\ \beta_0 < 0, \beta_1 < 0, \beta_2 > 0.$$

Equations (1) and (5) then constitute my model for the analysis of Schelling's problem. If u_t is substituted from (5) into (1), I obtain a linear, first-order differential equation

$$(6)\ \dot{w}_t = \alpha_0 + \alpha_1\beta_0 + \alpha_1\beta_1\dot{w}_t + \alpha_1\beta_2 w_t$$

whose solution is

$$(7)\ \alpha_0 + \alpha_1\beta_0 + \alpha_1\beta_2 w_t = ke^{\frac{\alpha_1\beta_2}{1-\alpha_1\beta_1}t}.$$

Equation (7) implies

$$(8)\ \dot{w}_t = \frac{1}{1-\alpha_1\beta_1} ke^{\frac{\alpha_1\beta_2}{1-\alpha_1\beta_1}t},$$

$$(9)\ u_t = -\frac{\alpha_0}{\alpha_1} + \frac{k}{\alpha_1(1-\alpha_1\beta_1)} e^{\frac{\alpha_1\beta_2}{1-\alpha_1\beta_1}t}.$$

Since the system is linear of the first order, only uni-directional movements from the (unemployment) equilibrium position can be treated.[4] The problem is that of wage cuts in relation to unemployment; therefore I impose the restriction $\dot{w}_t < 0$.

There are two cases to be considered. I. If $1 - \alpha_1\beta_1 > 0$, k must be negative (see equation [8]), and unemployment declines in time to its equilibrium level, $-\frac{\alpha_0}{\alpha_1}$ (see equation [9]). This is Schelling's case; the adjustment effect dominates the unfavorable expectations effect. It is evident that the relative magnitudes of α_1 and β_1 determine the direction of movement of unemployment in the system. A linear system is adequate for showing this result in spite of the fact that I do not alleviate unemployment by first aggravating it. I merely alleviate it in a system where the expectations of lower future wage rates follow from present wage cuts. II. If $1 - \alpha_1\beta_1 < 0$, k must be positive (see equation [8]), and unemployment continually grows worse after a wage cut (see equation [9]).

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[4] This is an unessential deviation from Schelling's approach.

This is a more rigorous presentation of the problem, and now I shall point out why I think that Schelling's point (Case I) is pathological and has only a grain of truth rather than the whole truth. The minimum level to which the wage rate can fall under Case I is

$$(10) \quad \frac{-\alpha_0 - \alpha_1\beta_0}{\alpha_1\beta_2}$$

which is dominated by the very large absolute value of β_0 (infinite in the nonlinear case of the Cobb-Douglas function).[5] For case I to hold, the wage rate must be exceedingly high and fall to a level not less than the positive quantity (10). I consider this event unlikely.

Alternatively, under Case II, the wage rate is bounded above by (10) and may fall from this high level downwards without alleviating unemployment in case adverse expectations are present. I consider this case to be the one worth consideration.

I have granted Schelling his grain of truth, but his entire method of analysis must be rejected. If he wants to work with two-variable, first-order differential equations, he must use a partial theory of the sort I have developed and his curves will not have the properties that he ascribes to them. If he wants to work with a complete dynamic system, he will be very hard put to end up with two equations in two variables and still be able to relate the parameters of these two equations to known behavior characteristics with definite properties. Any complete dynamic system which involves the price level, the wage rate, employment, unemployment, excess supply of goods, demand for goods, the stock of capital and possibly variables from the money market will of necessity be of high order and analyzable only in terms that are vastly more complicated than anything Schelling has considered.

LAWRENCE R. KLEIN*

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[5] A difficulty would obviously arise in my argument if β^2 were very large; however, I do not regard this as a serious possibility.

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Comment

In a recent article Mr. Thomas Schelling demonstrates "that the expectation effect *need not* imply instability of full employment equilibrium, even though it does initially involve an increase in unemployment over what it would otherwise have been in the absence of anticipations" (p. 920, italics in original). It is the purpose of this comment to point out that the particular case considered by Schelling is based on several severely restrictive assumptions which considerably reduce the generality of his argument.

First of all, Schelling reduces the entire influence of anticipations to the effect of the rate of decrease of prices, P', on his U function. This is entirely too much of an oversimplification. If, for example, we make expectations, and hence unemployment, depend upon the second derivative of price with respect to time, P'', we can come out with entirely different results. For example, assume that Schelling's U function depends on P'' in such a way that whenever $P'' > 0$ the whole family of U contour lines in Schelling's Figure 1 (p. 914) shifts over to the right. That is, assume that if the rate of price decrease increases, there is a depressing effect upon the consumption and investment functions and hence on unemployment. Now start off, as Schelling does, from x_1. As U moves toward x_3, in accordance with Schelling's argument, the point x_3 itself recedes; that is, the U curve corresponding to P_1 intersects $P'(U)$ further over to the right. Thus there is a further stimulation to increased unemployment. Whether or not this movement is reversed depends on whether the effect of a lower P (which pushes the U contour lines to the left) offsets those of a positive P''. If the P'' expectation effect continues with sufficient strength,[1] the system will continue to generate larger and larger amounts of unemployment without ever reversing itself.

Another possibility is that expectations are adversely affected by the durations of the unemployment. Thus during the time that U is moving rightward from x_1, the U contour lines are themselves shifting to the right. Under these assumptions unemployment will continue indefinitely to increase unless (a) in Schelling's terminology, U catches up with its functional value, and (b) once having caught up, the effect of a lowered price level on the U function asserts itself over the depressing effect of continuing unemployment —for even after U does catch up with its functional value unemployment is continuing.

Schelling would probably assume (a) to be true; he makes a similar assumption with respect to the comparative speeds of U and movements of the U functions in response to changes in P. The question remains: what is the economic interpretation of such an assumption? It should also be noted that this assumption is also used in Schelling's argument on page 921; for if the movement of U were slow, we would have to take into account the extra time involved in moving from x to y. On Schelling's assumption, this is completely ignored.

Finally, Schelling's *assumption* that the intersections of the U functions with $P'(U)$ are stable (short-run) equilibrium positions implies that the anticipation *effect is small.* If anticipation via P' exerted a strong influence on U, the slope of the U functions with respect to the U axis would be small; hence the U functions would intersect $P'(U)$ from above in an unstable intersection. Let us follow through the implications of Schelling's assumptions for such a case. Assume that, in Figure 1 (p. 914), U(P′, P1) intersects P′(U) from above at y_2, and intersects the P′(U) function again in the southwest quadrant at some point w.[2] Once again, start off from U = x_1 and P = P1. Schelling's RULE that U moves *"in the direction of* its value according to the unemployment function" (p. 916, italics in original) implies that we pass immediately from a state of unemployment to one of overemployment as a direct result of the unemployment function's extreme sensitivity to price anticipation. All this takes place even though initially prices are falling. These are indeed unusual results and cast further doubt on the degree to which Schelling's model represents economic reality. If, on the other hand, the initial point is to the right of the intersection point y_2, then (as Schelling himself points out in his reply) the unstable intersection will lead to steadily and indefinitely increasing levels of unemployment—a result directly contrary to Schelling's central thesis.

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[1] Schelling assumes that "after some lapse of time, the price *level* effect asserts itself over the anticipation effect" (p. 913, italics in original). It seems to me that this assumes away the whole problem of whether anticipation can so destabilize a system that unemployment will continue indefinitely.

DON PATINKIN*

[2] This same result could be obtained with certain types of stable intersections too; but, in general, unstable intersections provide more extreme cases of what is desired to illustrate.

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Rejoinder

Leaving for later comment the derivation of Mr. Klein's equation (5) relating the level of unemployment to the absolute level of wage rates and their current time rate of change, I shall accept it as formally identical with my unemployment function, U = U(P,P′), and compare his results with mine.[1]

First, Mr. Klein's system cannot reduce unemployment below the value given by $-\alpha_0/\alpha_1$, and his price level or wage level cannot go below the value of $(-\alpha_0 - \alpha_1\beta_0)/\alpha_1\beta_2$. These restrictions follow from his insertion of constants in his equations. I indicated, on page 916, that I let the price-change function pass through the origin of the diagram in order that the definition of price flexibility be consistent with the definition of full employment. If my P′(U) curve is shifted so that it cuts the horizontal axis at a distance, α_0, from the origin, my diagrams yield the same result. This situation might be described either as "incomplete price flexibility" or simply as a discrepancy between some optimum level of employment and the equilibrium level. If there were a policy choice between price flexibility and some other full employment device, this distinction would be important; if the question is only whether the anticipation effect spoils the price *level* effect under conditions of price flexibility, it is not, since the level effect would be subject to the same limit if it operated alone.

Second, Mr. Klein's model has neglected the stability question, and he has consequently given too much importance to the solution of his equations. His model would be the same as mine if I had stopped at the end of page 914, where I stated that "these two behavior functions would be sufficient to determine the course of the variables over time," but went on to say that

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[1] If my relationship, U = U(P,P′), is put in the form of a linear equation with a constant, and if P is replaced with w and P′ with $-\dot{w}$, the result is Mr. Klein's equation (5).

"this procedure would avoid the main problem, namely whether our two functions necessarily are, or can be, simultaneously satisfied." As I stated there, "we must first ascertain whether our two behavior functions enjoy dynamic stability, before analyzing the implications of their simultaneous satisfaction."

Mr. Klein's model proceeds directly to the implications of their simultaneous satisfaction; my paper went back one step and set up an "adjustment behavior" pattern in order to deduce the conditions under which the two functions would or would not be stable. Thus my system would be represented (in linear terms without constants) as:

$$(1)\ \dot{w} = \alpha_1 U$$

$$(2)\ \dot{U} = R[\beta_1 \dot{w} + \beta_2 w - U]$$

where the equilibrium condition of (2) is what I referred to as the $U(w,\dot{w})$ function, namely:

$$(3)\ U = \beta_1 \dot{w} + \beta_2 w$$

which is obtained by putting U equal to zero in (2).

Equations (1) and (2) give rise, upon further differentiation, to the second order equation:

$$(4)\ \ddot{U} = R(\beta_1\alpha_1 - 1)\,\dot{U} + R\beta_2\alpha_1 U$$

The variable, U, is stable about the equilibrium value, $\dot{U} = 0$, if and only if both coefficients are negative. Since α_1 is negative by the definition of price flexibility, and β_2 is positive by the hypothesis under investigation (that there is a positive relation between the level of consumption corresponding to any given level of national income and the real value of money assets), $R\beta_2\alpha_1$ is negative. The anticipation effect makes β_1 negative, so that $\beta_1\alpha_1$ is positive; this product must then be less than +1 for stability. Writing this condition as $-\alpha_1 < 1/-\beta_1$ makes it clear that, as I indicated on page 917, the slope of the U function must be greater than that of the P′ function at the intersection in order that the equations be stable and the course of the moving intersection be relevant to analysis.

Mr. Klein's system, however, since it does not discriminate between stable and unstable solutions, shows steady divergence *along the moving intersection of the two functions* when $\alpha_1\beta_1$ exceeds +1; when $\alpha_1\beta_1$ exceeds +1, however, the two functions are dynamically incompatible, and the path traced by the variables does not correspond to that moving intersection.

Because his system ignores the stability question, and *assumes* the satisfaction of the two relationships, Mr. Klein can state that he does not alleviate unemployment by first aggravating it (first new paragraph after his equation 9). The reason for his system's failure to show the aggravation is, of course, that his system of analysis only picks up the process after the aggravation has occurred; the aggravation occurs while the unemployment function is unsatisfied, and Mr. Klein's system only shows what happens when it is satisfied.

Regarding the nature of the two functions, Mr. Klein's equation (5) and my $U = U(P,P')$ function, they seem to be derived from totally different hypotheses, as Mr. Klein carefully indicates. His reference to a Cobb-Douglas production function suggests that he is referring to wage variability with constant prices, as does his formulation of the labor supply equation (4). My formulation considered variation in all prices, including wage rates, and considered only the implications of the assumed correlation between consumption and the real value of money assets at any level of income, and the anticipation effect on investment (and consumption, too, unless we classify postponable consumption as investment for this purpose) of the rate of change of prices. Whether wage rates would be in fixed proportion to other prices throughout the process, or might vary in relation to other prices with variation in the level of employment, is a question which was omitted in my paper and which would, of course, have to be considered in a fuller treatment.

Mr. Klein raises several questions about the origin of my unemployment function; the crucial one is the question of how the height of the savings function may depend on the absolute price level. This relationship is rather extensively explored by Mr. Patinkin in his original article.[2]

Turning to Mr. Patinkin's paper, I find myself in agreement with his main point; new variables or higher order derivatives can lead to instability. What I find interesting is that they can lead either to instability or to stability.

I did not mean, on page 913, to *assume* that the price level effect would ultimately dominate the anticipation effect, as Mr. Patinkin suggests in his footnote 1, but only to suggest what would be found crucial in the analysis to follow. As remarked above, both possibilities—of stability and of instability—were indicated in my paper; my diagrams corresponded to the stable case in order that they might illustrate the possibility I had found interesting and in order that the result might be determinate.

The interesting possibility described in Mr. Patinkin's final paragraph, I find perfectly valid. Although he has injected a large enough anticipation effect to make the functions unstable in the neighborhood of the north-east intersection, he has started off the process from a situation in which there is initially a large *level* effect; alternatively, we may say that he has given the large anticipation effect a relatively small initial rate of price decline to work on. As long as he pivots his U line about the point of intersection, the flatter he makes the line the farther to the left of zero does it intersect the horizontal axis. Dividing the initial rate of price decline by the slope of the U function gives us the effect of anticipation, and by his construction he has made this value less than the distance from X_1 to the value of U(P1,0). He has thus rigged the curves and starting points so that the expansionary effect of the low price level outweighs the depressing effect obtained by compounding a large anticipation coefficient with a relatively small initial rate of price decline. If he begins to the right of the intersection he describes, he is on the opposite side of an unstable intersection and U rises (outward, to the right) instead. Thus his result is only one of those things that may happen when initial values are far away from a stable intersection, or when there is no stable intersection. (The second intersection described in this case by Mr. Patinkin, that in the S.W. quadrant, is necessarily stable; there may also, of course, exist another intersection—stable this time—to the right of the unstable one.) The plausibility of this case is neither more nor less than the plausibility of the initial values Mr. Patinkin has chosen.

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[2] Don Patinkin, "Price Flexibility and Full Employment," *Am. Econ. Rev.*, Vol. XXXVIII, No. 4 (Sept., 1948), p. 543 ff, *passim*.

In a personal letter Mr. Patinkin has pointed out an error in my analysis. If the P′ curve be given (for example) an ogive shape in both the N.E. and the S.W. quadrant, while the U line be of such shape that it intersects the P′ curve once stably in each of those quadrants, perpetual oscillation may occur, of an amplitude depending on where the points of tangency occur. This possibility—which I had denied—I find especially interesting since it represents an "anticipation cycle" distantly akin to the acceleration cycles discovered by Professors Samuelson and Metzler.

A final point seems worth emphasizing. The anticipation effect which is the subject of this discussion is—so far as stability of equilibrium is concerned—not relatively small or relatively large by comparison with the price level effect, but small or large by comparison with the degree of correlation between the rate of price decline and the amount of unemployment; that is, it is the slope of the relation between P′ and U, not the rate of leftward shift of the U function, whose comparison with the slope of the U function is crucial to stability.

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The Federal Reserve and Monetary Policy Formation: Comment

Professor George L. Bach's recent article on monetary policy formation[1] conveys a strong implication that the individual Federal Reserve Banks cannot, by their very nature, represent the broad public interest in considering the policy questions that confront the monetary authorities. As illustrative evidence, Professor Bach draws upon certain disagreements that have arisen between the Board of Governors and the Reserve Bank presidents (particularly the president of the New York Bank) over the past decade. Although his analysis has no doubt benefited from his experience as a member of the staff of the Board of Governors from 1941 to 1944, Professor Bach has based his discussion on the public statements of the Board and the Bank presidents. The record he cites does not support his conclusions nor provide a basis for his recommendation that the Reserve Banks should be denied voting participation in future Federal Reserve policy formation.[2]

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[1] "The Federal Reserve and Monetary Policy Formation," *Am. Econ. Rev.*, Vol. XXXIX, No. 6 (Dec., 1949), pp. 1173-91. Professor Bach indicates that his paper represents primarily a brief summary of one part of a larger study which he prepared in 1948 for the Hoover Commission.

[2] Professor Bach recommends (p. 1190) that the Federal Open Market Committee be abolished and that responsibility for all policy formation be vested in the Board of Governors, largely because "Monetary policy must be national and public in character; it has no room for regionalism or for special interests."

Specifically, with respect to the controversy over the kind of credit policy appropriate to restrain war and postwar inflation, Professor Bach states:

> The presidents, often led by the president of the New York Bank, have often been more inclined to favor cautious, mild policies that would be less disruptive to the normal courses of banking and the money markets than have the Board members.
>
> . . . it is only natural that the Reserve Bank presidents, whose daily work throws them in intimate contact with the commercial banks of their districts, should sense and appreciate fully the problems faced by the bankers. The Board members, on the other hand, are further removed from the private banking community and are apt to evaluate higher the possible "public" advantage (for instance, checking inflation) even at the cost of reducing private bank earnings or disrupting normal money market procedures (pp. 1176-77).

In support of his argument, Professor Bach adduces three instances when Reserve Bank presidents lost sight of the public interest because of a "natural" concern over the local impact of the measures under consideration:

> . . . at various points during the war when the possibility of raising reserve requirements was considered; following the war when Board proposals to tighten up sharply on interest rates were under discussion; and when the Board recently proposed that additional special statutory reserve requirements . . . be imposed on member banks to check loan expansion . . . (p. 1177).

He amplifies the third of these examples (the special reserve plan) by contrasting the testimony of President Sproul, of the New York Reserve Bank, and Board Chairman Eccles, before the Joint Congressional Committee on the Economic Report in 1947-48. On that occasion, according to Professor Bach:

> The Board sought added reserve requirement powers to take active steps against inflation through checking bank credit expansion, while Mr. Sproul doubted the need for further action in the credit field and specifically opposed the vigorous, "clumsy" method of raising bank reserve requirements if any action were to be taken, favoring instead a more tentative, less "disruptive" approach (p. 1177).

Examination of these three "examples" yields no support for the inference which Professor Bach has drawn from them. As to the first, there is no published indication that increases in customary reserve requirements were considered at any time while this country was at war.[3] There are, moreover, no apparent reasons why primary reserve requirements should have been increased during that period. Perhaps Professor Bach meant to suggest something different, such as an impounding of bank-held government securities into a new type of "reserve" with the object of limiting the banks' earnings on their government portfolios. If so, that type of device had already been worked out in exploratory studies at the New York Bank in 1940, in connection with the problem of absorbing excess reserves. It had been generally rejected at that time as administratively unworkable, and the Board of Governors, the twelve Bank presidents, and the Federal Advisory Council had joined instead in a recommendation to Congress at the end of 1940 that wider powers be granted over primary reserve requirements. Certainly any skepticism over revival of the security-reserve proposal in wartime, if that was ever seriously suggested, could not be identified, *prima facie*, with a lack of appreciation for the public interest. It is not necessarily contrary to the public interest to oppose a scheme (however well intended) on the grounds that it is unworkable.

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[3] The Board of Governors decreased reserve requirements for central reserve city banks in 1942, and made reference in its 1942, 1943, and 1944 *Annual Reports* to the expansion of Reserve Bank credit necessary to keep member banks adequately supplied with reserves.

Nor does the public record substantiate Professor Bach's second example, with respect to postwar "Board proposals to tighten up sharply on interest rates." The Board's 1945 *Annual Report* stated explicitly that "The Board does not favor a higher level of interest rates than the Government is now paying."[4] If we follow Professor Bach in taking the views of President Sproul of the New York Bank as representative of the Reserve Bank presidents, and use the views of Chairman Eccles to represent those of the Board, then the positions seem to be just the reverse of those described by Professor Bach. As late as October 24, 1946, Chairman Eccles was opposing "an increase in interest rates at this time,"[5] while on December 6, 1946, Mr. Sproul broke a long silence to make his first controversial public address of the postwar period, declaring that ". . . we should look forward to restoring some flexibility to the interest rate structure."[6] Furthermore, at the peak of the postwar inflation, on August 3, 1948, Governor Eccles was still stating that a rise in the short-term rate was minor in so far as its monetary effect was concerned.[7] On the same day, however, President Sproul asserted that an increase in short rates would be desirable because, by narrowing the spread between short- and long-term rates, it would induce the banks to stay in short-term government securities and would introduce and maintain a salutary element of doubt and uncertainty as to the future course of rates.[8] It appears, therefore, that, contrary to Professor Bach's statement, *no one* proposed to raise rates *sharply*, and that the idea of pursuing an effective policy of restraint involving moderate increases in short rates originated with Reserve Bank presidents, and was originally advocated by them (notably by President Sproul) in the face of outright Board opposition.[9]

Professor Bach's third "example" relates to the postwar special reserve proposal of the Board of Governors. This proposal, as noted above, had its genesis in studies carried on in 1940 at the Federal Reserve Bank of New York.[10] The same administrative impracticability which marred the scheme in 1940 as a device for reducing excess reserves to manageable proportions still ruled it out, in the minds of many, when it was later offered by the Board of Governors as a method of restraining inflation.

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[4] *Annual Report of the Board of Governors of the Federal Reserve System* (1945), published June 14, 1946, p. 4.

[5] In an address before the New England Bank Management Council.

[6] In an address before the New Jersey State Bankers Association, published later in the *American Economic Review* (June, 1947).

[7] *Inflation Control*, Hearings before the House Banking and Currency Committee, 80th Congress, 2nd Sess., S. J. Res. 157 (Washington, U. S. Government Printing Office, 1948), pp. 182-83. Governor Eccles at this time favored increasing the short rate, however, largely because of the "serious question of bank earnings."

[8] *Inflation Control*, Hearings before the Senate Banking and Currency Committee, 80th Congress, 2nd Sess. (Washington, U. S. Government Printing Office, 1948), p. 237.

[9] The Board later moderated its stand, but it showed at most only lukewarm enthusiasm for a type of credit policy dependent upon increases in interest rates until sometime late in 1947 or early in 1948.

Yet Professor Bach attributes President Sproul's opposition to concern over private bank earnings and maintenance of "normal money market procedures," while at the same time awarding to Chairman Eccles and other proponents of the measure an accolade for a higher evaluation of the public advantage. Professor Bach states that the Board sought additional reserve requirement powers in order to take "active steps" against inflation, while President Sproul "doubted the need for further action in the credit field." This is a misstatement. The doubts which President Sproul expressed concerned, not the need for further action, but the need for *legislation* conferring *additional* credit control powers on the Federal Reserve System beyond those already possessed.[11] There is no evidence that concern for the maintenance of private bank earnings was an important factor in the determination of President Sproul's views on legislation concerning either primary or secondary reserve requirements. Nor was he influenced merely by a fear of disrupting "normal money market procedures."[12] His opposition to special reserve requirements, and his argument that ". . . constantly seeking their imposition does run a risk of seriously interfering with our present program,"[13] were clearly based on the belief that increases in reserve requirements were not then, and by their very nature could not be, a satisfactory substitute for a positive open market policy in controlling the availability of credit.[14]

[10] The Federal Reserve Bank of New York, however, did not publicly endorse these studies. They were directed by Dr. Lawrence H. Seltzer. See his articles, "The Problem of Our Excessive Banking Reserves," *Jour. Am. Statistical Assoc.*, Vol. 35 (1940), pp. 24-36; and "The Changed Environment of Monetary-Banking Policy," *Am. Econ. Rev.*, Vol. XXXVI, No. 2 (May, 1946), pp. 65-79.

[11] The reasons for President Sproul's doubts are clearly evident in his testimony before the Joint Congressional Committee on the Economic Report in 1948. They were in essence (a) a strong conviction that the System had not yet utilized its *existing* powers (*i.e.*, for restraining credit availability through open market operations and rising rates of interest) to control inflation with maximum effectiveness, and should do so before seeking additional powers (*Credit Policies*, Hearings before the Joint Committee on the Economic Report, 80th Congress, 2nd Sess. [Washington, U. S. Government Printing Office, 1948], p. 93); and (b) a conclusion that the additional powers sought could not achieve an effective control over the monetary factors contributing to inflation, but would in fact merely divert attention from the fundamental need for a general tightening of credit availabilities (*ibid.*, pp. 96-97).

[12] President Sproul did state that imposition of large additional reserve requirements—either primary or special—"could not help but be upsetting to the securities market, as deficient banks adjusted their position to meet the new requirements" (*idem.*). But will Professor Bach deny that this is true, or that it should quite properly have been considered in reaching a conclusion on the wisdom of the proposed action?

[13] *Credit Policies*, p. 96.

[14] This is a view which President Sproul has often expressed. A recent exposition of it is contained in his testimony of December 2, 1949 before the Douglas Subcommittee. See *Monetary, Credit and Fiscal Policies*, Hearings before the Subcommittee on Monetary, Credit, and Fiscal Policies of the Joint Committee on the Economic Report, 81st Congress, 1st Sess (Washington, U. S. Government Printing Office, 1950), pp. 430-59.

In summary, the evidence cited by Professor Bach does not support the case he has attempted to present. There have been clear-cut differences of opinion between the members of the Board of Governors and some of the Reserve Bank presidents throughout the war and postwar period. The record suggests, however, that both groups have been fully conscious of the necessity for combatting inflation in the public interest. Both have pressed vigorously for programs aimed at that objective. What matters for Professor Bach's thesis, however, is that he has not presented evidence to show that the Reserve Bank presidents should, on the basis of their past record, be barred from direct voting participation in the policy formation of the Federal Reserve System.

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Rejoinder

Mr. Kreps' spirited defense of the honor of the Federal Reserve Banks and their presidents is somewhat surprising and is perhaps misleading in its vigor. A rereading of the original article will reveal that the entire attack which Mr. Kreps feels I have unjustly made on the Reserve Bank presidents consists of the one mild text sentence he quotes first, plus a footnote, which he also quotes in three parts without indication of its footnote status. Since I neither made nor intend an attack on the integrity of the Reserve Bank presidents, and since I have properly been asked to hold this note to a page or two, there is no point in attempting a detailed reexamination of the public statements of President Allen Sproul and Governor Marriner Eccles, selections from which Mr. Kreps primarily cites. Instead, it may be most helpful to state briefly what seem to me to be the main issues involved in Reserve Bank participation in national monetary policy-making, and to place these issues, and Mr. Kreps' comments, in their over-all setting. I hope that this may also throw some light on the confusion that appears to exist in the contradictory conclusions reached by Mr. Kreps and myself.

1. The original article suggests three major reasons why, on the basis of my study, it would appear desirable to unify responsibility and power for Federal Reserve monetary policy-making in a single, smaller Board of Governors—in contrast to the present unrealistically divided and elaborate statutory allocation of power and responsibility between the Board of Governors and Open Market Committee. One reason is that here, as in other regulatory commissions, there seems to be no reason why the regulated "industry" should have a direct vote in choosing the regulating commissioners. Another is that major participation in governmental monetary-fiscal policy-making for the Federal Reserve can, realistically, come only with a very small policy-making Board, or single head, for the System. On both scores, I recommended a new smaller Board, required to consult with the Reserve Bank presidents on all policy measures.

In fact, voting participation of the Reserve Bank presidents in national monetary policy formation does not stand or fall on the question of their possible partial identification with the commercial banks of their districts. Either the identification exists or it does not. (a) If it *does* exist and there *is* an important difference between the "public interest" as seen by the Reserve Bank presidents and the Board members, then I think we can agree that the presidents should not be voting members of the nation's monetary and bank supervisory policy-making body. (b) If, on the other hand, the Reserve Bank presidents' public policy outlooks *are* in fact uninfluenced by their positions and *are* essentially indistinguishable from those of the Federal Reserve Board members, then what is the reason for adding the presidents to an already cumbersome, overlarge Board of Governors for monetary policy-making? Either way, the case against voting membership on the policy body seems clear.[1]

2. Though the matter is not crucial for the main question, one observation on the question of Reserve Bank identification with the commercial banks may be worth while. I am personally convinced that every Reserve Bank president wholeheartedly endeavors to advance the "public interest." But what is the "public interest" is a difficult and tenuous thing, on which every man's views inevitably are the resultant of a wide variety of associations, previous views and experiences, formal responsibilities, current information, and other forces. That a Reserve Bank president should see current banking problems somewhat differently from a Board member in Washington, and should sense more actively the problems and concerns of the commercial bankers, seems to me inevitable by the very nature of his position and work —in no sense reprehensible or immoral. *If* we want specific representation on the national monetary policy body of some identification with the commercial banks, and *if* the Reserve Bank presidents represent this identification (which Mr. Kreps denies), then the presidents should have formal policy voting power. But *only* if both conditions are met.

3. With reference to Mr. Kreps' evidence on the timing and motivation of Board and Reserve Bank views in the past, I should like merely to assert that, if there were space here, a thorough examination of the record of Board and Reserve Bank behavior and key recommendations would show the evidence to be in accord with my quoted statement that "The presidents . . . have often been inclined to favor cautious, mild policies that would be less disruptive to the normal courses of banking and the money markets than have the Board members." It has been said that one can prove anything with statistics; brief use of selected quotes out of context suffers from the same difficulty of being not very satisfactory evidence. Mr. Kreps has properly presented some of his spot evidence in his necessarily brief scope; I had a little in my original article, more in the book cited above. Since there is not

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[1] At the risk of seeming prejudice, I suggest that for a fuller statement of the issues and the arguments *pro* and *con* on this and the following points, the interested reader refer to the more complete report I have recently published (*Federal Reserve Policy-Making* [A. A. Knopf, 1950], esp. Chaps. IV and XIV), or to the original Federal Reserve working paper submitted to Congress by the Task Force on Independent Regulatory Commissions of the Hoover Commission.

space here for a detailed examination, or for investigation of Federal Reserve intramural disagreements over who worked when on the special reserve proposal, the reader will have to judge for himself on this aspect of disagreement. Or he can look more fully for himself at the timing and full nature of the various statements and policy actions and inactions.

4. Lastly, I must protest mildly against Mr. Kreps' putting adverbs into my mouth, in making out the case he sets out to refute. "Largely" and "merely" are strong words that can drastically change readers' impressions. Mr. Kreps, not I, will have to take responsibility for them in the statements in his footnote 2 and in his penultimate paragraph on President Sproul's motives concerning disruption of normal money market procedures.

G. L. BACH*

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The Keynesian Framework and Money Income

Mr. Franz Gehrels recently pointed out that, with full employment, an increase of government expenditures and tax receipts by the same amount will expand money income by more than the budget increase.[1] To clarify and amend his argument, I wish to distinguish carefully between the conditions of unemployment and of full employment, and between the implications for real income and for money income.

Case I: *Unemployment—Price Levels Assumed Constant*

Under this assumption, the following propositions hold with respect to either money or real income.

Proposition A. Increasing the tax yield and government expenditures for goods and services by the same amount (ignoring redistributional effects) will raise the equilibrium level of income by the increase in government expenditures—*i.e.*, the balanced-budget multiplier is one. If ΔY is the change in income, ΔG the change in government outlays, ΔT the change in tax receipts, and c the marginal propensity to consume out of disposable income, we have:

$$\Delta Y = \Delta G + c\,(\Delta Y - \Delta T), \text{ or, since } \Delta T = \Delta G, \ \Delta Y = \Delta G$$

Proposition B. In order to neutralize the income effects of the increased expenditure, we must raise tax receipts by a larger amount. Setting ΔY equal to zero in the above equation, we have:

$$0 = \Delta G + c\,(0 - \Delta T), \text{ or } \Delta T = \frac{1}{c}\Delta G$$

If c is ½, the required increase in tax receipts is twice the increase in expenditures. If c is larger than ½, the tax increase needed is less than twice the increase in expenditures; if c is less than ½, the necessary increase in receipts is more than twice the increase of government outlays.[2] Although, as Haavelmo stressed, the multiplier effect of a balanced budget is independent of the marginal propensity to consume, the excess of taxes necessary to prevent income from rising is not.

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[1] "Inflationary Effects of a Balanced Budget Under Full Employment," *Am. Econ. Rev.*, Vol. XXXIX, No. 6 (Dec., 1949), pp. 1276-78. His comment grew out of the argument in T. Haavelmo, "Multiplier Effects of a Balanced Budget," *Econometrica*, Vol. XIII (Oct., 1945), pp. 311-18.

Throughout this note, I am comparing equilibrium positions and am assuming some dynamic rule which makes such positions relevant.

Case II: *Full Employment—Real Income Assumed Constant*

Under this assumption, the balanced-budget multiplier necessarily pertains to money income. There can be no net real injection, through an increased budget or otherwise, and no net expansion of real income.

Gehrels' argument concerned this case. A balanced-budget increase under these circumstances must soon inflate prices and hence disposable money incomes. However, since the government expands its real income and expenditures, the public's disposable *real* income must decline (*i.e.*, prices rise more than disposable money incomes). The average propensity to consume out of this reduced disposable real income will be higher.[3] But this means that consumers' money expenditures constitute a larger percentage of disposable money income.

Gehrels is mistaken, however, in suggesting that "in order to increase the level of government activity [with full employment] while avoiding the inflationary effects that would result, it is necessary to increase tax receipts by more than twice the increase of expenditures."[4] He appears to overlook two things. First, if additional taxes are in fact sufficient to neutralize the effect of increased government outlays on money income, there will be no rise in the price level. Second, the multiplier applies to any change in consumption due to altered taxes just as much as to any other injection. Therefore, there is no necessity for additional taxes being at least twice the additional expenditures.

Proposition A. If we reach equilibrium at all,[5] increasing the tax yield and government expenditures by the same amount will raise the equilibrium level of money income more than the increase in government outlays—*i.e.*, the balanced-budget "multiplier"[6] applicable to money income is greater than one.

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[2] If investment too is related to income, the necessary increase in tax yield will depend upon the slope of the investment function as well as that of the consumption function.

[3] The *fall* in disposable real income should have this effect even if the average propensity to consume is independent of the *absolute* level of real income. See J. Deusenberry, *Income, Saving and the Theory of Consumer Behavior* (Cambridge, Harvard University Press, 1949), pp. 17-46.

The argument does, however, ignore the effect of the decreased real value of money and government bonds, and hence of total net worth.

[4] Gehrels, *op cit.*, p. 1278.

[5] See A. Smithies, "Behavior of Money National Income Under Inflationary Conditions," *Quart. Jour. Econ.*, Vol. LVII (Nov., 1942), pp. 113-28.

[6] This is not on orthodox multiplier since it involves a shift of the consumption function (in money terms)—*i.e.*, a secondary injection.

Proposition B. As in Case I, the increase in tax yield required to offset the income effect of increased governmental outlays is equal to $\frac{1}{c}\Delta G$.

Case III: *Unemployment—Neither Price Level Nor Real Income Constant*

In this general case, the one we usually encounter, both output and wage-price levels respond to changes in aggregate income and expenditures.

With respect to real income, Propositions IA and IB still hold. Couched in real terms, however, these propositions and the ordinary Keynesian models may not be helpful guides to policy. For one thing, without a satisfactory theory of price-wage determination, we cannot know how much to alter the money amounts of taxes and government outlays in order to secure a desired change in real taxes or outlays.

With respect to money income, Gehrels' Proposition IIA applies. A balanced-budget increase which raises the price level causes disposable real incomes to be lower and may cause consumption out of various money incomes to be higher, than if there were no rise in prices.

Couched in money terms, therefore, ordinary Keynesian models seem unlikely to give usable predictions. In order for the multiplier, whether for simple injections or balanced-budget changes, to apply to money income, the consumption function would have to relate money consumption to money income. However, without knowing to what extent altered money income will reflect altered prices, we can hardly expect to forecast very accurately how much will be consumed out of that income.[7]

Roland N. McKean[*]

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[7] See F. Modigliani, "Fluctuations in the Saving-Income Ratio: A Problem in Economic Forecasting," *Studies in Income and Wealth,* Vol. XI (New York, National Bureau of Economic Research, 1949), p. 372.

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Trade Unionism, Full Employment, and Inflation[1]
Comment

As a prophet of doom criticized for hyper-acidity in Professor Walter A. Morton's reconciliation of strong unions, full employment, and price stability, I should like to apply further vinegar at a few points.

1. First comes the wage-price spiral *versus* the quantity theory as an explanation of price movements, which is a chicken-egg problem. On the one hand, the quantity theory can work through the wage-price spiral, as it does in Professor Morton's analysis. On the other, the wage-price spiral can work through the quantity theory, by pressure on bank credit policy and by government fiscal measures.[2] In analyzing the 1945-48 American inflation,

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[1] Walter A. Morton, "Trade Unionism, Full Employment, and Inflation," *Am. Econ. Rev.*, Vol. XL, No. 1 (March, 1950), pp. 13-39.

[2] The second edition of D. H. Robertson's *Money* contains (p. 222) what may become the

Professor Morton is correct in assigning primary importance to the quantity theory working through the wage-price spiral, in consequence of the wartime accumulation of liquid assets. (There was, as he points out, simultaneous expansion of bank credit which offset the deflationary effects of the contemporary federal budget surpluses; I do not think he has absolved the wage-price spiral from all complicity in this connection.) "From here on out," however, in the absence of abnormal liquid asset holdings, the shoe will probably shift to the other foot, with peacetime inflation proceeding through wage increases, price increases, and constants pressure for deficit financing to maintain full employment "irregardless."

2. This brings us to the next point of disagreement between Professor Morton and myself, which relates to the capacity of bankers to resist inflationary pressures brought about by the wage-price spiral. Here Professor Morton would be quite correct in his optimism if we had only union monopoly and "Lewis' Law" to mar an otherwise workably competitive economy. But as a matter of fact, unions are only one of three major organized pressure gangs from the producer side, and it is a misinterpretation to accuse the pessimists of ignoring the other operators.[3] In addition to "Lewis' Law" pressing wages upward in advance of productivity, we are faced with "Fairless' Law," which does the same for returns to capital, not to mention "Kline's Law" for farm prices. The desire and capacity of commercial and central bankers to resist Mr. Lewis alone may indeed be as great as Professor Morton suggests. Their resistance to Messrs. Fairless and Kline appears substantially less, and their immunity to all three in combination is practically zero.

Central Bank policy toward support of government security markets is unfortunately not so separate and distinct a matter from policy regarding the wage-price spiral as Professor Morton makes it out to be. Specifically, if Congress, yielding to political pressures as it did in 1949, re-embarks on deficit finance with a Fourth Round under way and before permitting prices to fall after a 50 per cent inflation, Federal Reserve pusillanimity in continued support of the bond market constitutes support of the wage-price spiral at one remove.

3. If aggregate consumption cannot be increased materially in depressions by income redistribution in favor of labor, how can such redistribution pull up prices from the demand side during an inflation? Professor Morton makes a neat point here, although I tried to cover it in advance in the earlier article

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classic statement of this point: "The attempts which are now sometimes made to draw a sharp distinction between inflationary situations which are due to credit policy (which we are said to have successfully avoided) and those due to an upward surge of money wage rates (to which it is admitted we are still prone) seem to me to have only a limited validity. If we are to tell the blunt truth, was it not the menace of credit stringency which ultimately set a limit to the power of employers to concede increases of money wages and therefore to the determination of work-people to demand them?"

[3] See in particular H. C. Simons, *Economic Policy for a Free Society* (Chicago, University of Chicago Press, 1947), p. 129 f.

to which he refers.[4] There are two answers. With special reference to the United States in 1945-48, profits more than kept pace with wages and there was no redistribution of income in favor of labor, to be blamed for any part of the inflation. More generally, we should distinguish between consumption as an aggregate and consumption of the essentials which are covered by price indexes and general thinking on price levels. If the rich consume champagne and the poor, potatoes with marginal propensities approximately equal,[5] a shift in income from rich to poor will not affect total consumption. It will, however, increase the demand and price of potatoes while reducing the demand and price of champagne. The man in the street and the statistician in his office will both, I venture to resuggest, conclude with some reason that "prices have gone up."

4. Professor Morton argues with cogency that union monopolies are less to be feared than other types. Working through the strike, they exercise their powers only at the cost of the temporary loss of nearly all their members' incomes. On the other side, however, he does not mention unions' greater relative capacity to employ violence in support of their economic demands. The "Coal and Iron Police" and the "Chowder-Head Cohens" will never be missed from the American labor scene, but what of the union "Action Squad?" This was Henry Simons' point in singling out the unions for special consideration as "Syndicalists,"[6] and Professor Morton's case suffers from failure to answer it directly.

5. Professor Morton's main thesis makes compensatory fiscal policy rather than pressure economics the villain of the piece. As he states, "When the Employment Act of 1946 was under consideration, it was suggested that compensatory policies should be followed only in so far as they were consistent with a stable cost of living, but no such provision was included in the act."[7] Certainly such a limitation on compensatory fiscal policy, if enforceable politically, would have the effect of checking permanent inflation. In the face of "Lewis' Law," however, the only kind of full employment it could provide on a permanent basis would be the "disguised unemployment" of a downgraded *lumpen-proletariat* debarred from the fruits of restrictive unionism. Whether such a policy could persuade or compel Mr. Lewis (or Mr. Fairless, or Mr. Kline) to repeal their respective Imperial Ordinances without substantial assistance from the Anti-Trust Division is the point on which I reserve the privilege of pessimism exceeding Professor Morton's.

M. BRONFENBRENNER*

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[4] M. Bronfenbrenner, "Postwar Political Economy: The President's Reports," *Jour. Pol. Econ.*, Vol. LVI, No. 5 (Oct., 1948), pp. 382-84.

[5] This, however, is *not* Mr. Lubell's point in the article to which Professor Morton refers (*op. cit.*, p. 20 and note 9). The relative scarcity of the wealthy, not any equality in propensities to consume, accounts for his statistical results.

[6] H. C. Simons, *op. cit.*, p. 130.

[7] W. A. Morton, *op. cit.*, p. 35. (A certain modesty has prevented Professor Morton from mentioning that foremost among such suggestions was his own).

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Comment

In a recent article in this *Review*, Professor Walter A. Morton examines the effect of trade union action as a causal element in the postwar inflation. The purpose of this communication is to show that the passive rôle which Professor Morton assigns to trade unions in the postwar years is unwarranted.

Professor Morton attaches little importance to the cost effect of wage increases upon prices. He maintains that in competitive industries wage increases were simply excuses for price increases. In doing so, he relies unduly on competitive situations. Industries such as rubber, aluminum, electrical appliances, lead, cement, and, of course, steel, to cite a few, and especially those producing consumer durables set their prices on what can roughly be called a cost-plus basis. For a variety of reasons bound up with oligopolistic price determination, firms in such industries did not exploit the seller's market which existed at that time as fully as they might have done.[1] Furthermore, in the first half of 1948 many of these oligopolistic firms attempted to hold the line on price increases (in some cases effecting price reductions).[2] The fact that prices rose immediately after wages rose in such industries further attests to the pushing effect of wage increases on prices. Wage increases did result in higher prices in those industries where a certain unique relationship existed between costs and prices,[3] and such oligopolistic industries represent the typical market structure in the United States, not the aberration that Professor Morton makes them.

The author is probably quite correct when he states that trade unions reduced the wage lag that would have existed if the labor market were perfectly competitive. But in discussing this aspect, he completely ignores the pulling effect of wage increases through increased demand which he correctly emphasized as inflationary at the beginning of his essay. He assumes that if wages had been lower, the inflation would have been just as sharp: "Had wages been lower, individual savings would likely have fallen further in the attempt to maintain living standards, and corporations who disbursed only about one-third of profits to stockholders would have had additional funds for plant expansion. This might have induced additional capital formation or smaller borrowings."[4]

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[1] Ample verification that consumer durables were underpriced in a purely competitive sense is provided by the facts that used car prices were higher than new car prices at this time and that bonuses were paid to the retailers of washing machines, refrigerators and radios.

[2] *Cf.* "The Economic Situation at Midyear 1948," (a report to the President by the Council of Economic Advisers) in *The Midyear Economic Report of the President,* July, 1948 (Washington, 1948).

[3] An additional inflationary impetus was provided by wages rising faster than productivity in the period 1946-1948, something which Professor Morton explicitly recognizes. He states on page 27 that "wage increases in excess of productivity are therefore inflationary," and in the next sentence admits that this "condition existed from 1946 to 1948." In passing, it should be noted that this admission apparently contradicts the statement appearing on page 26, to the effect that union wage policy had not been inflationary in the postwar period.

[4] Morton, *op. cit.*, p. 22.

It is undoubtedly true that personal savings would have been reduced to some extent. But, had wages been lower, there is no doubt that effective demand, as evidenced especially by the backlog of orders for most consumer durables, would have been smaller than it actually was. Although new plants and equipment would certainly have been built, the volume of new investment undertaking would have been smaller than it actually was. In other words, with lower wages there would have been exerted a smaller pulling effect, and therefore, via the acceleration principle, less net investment. A slowing up in the demand for consumer goods would have resulted in less inflationary pressure than would have otherwise existed.

Furthermore, Professor Morton's analysis of cause and effect is seriously handicapped by his failure to consider the dynamic effects of trade union bargaining during this period. Any explanation of inflation (or deflation) which ignores the rôle of anticipations is of little analytic value. Successful wage negotiations by one union resulted in a surge of new wage demands on the part of other unions. This brought about a further inflation of the price level through two factors which Professor Morton does not consider. First, consumers in all income groups viewing this widely publicized union activity rationally hastened to spend before increased wages resulted in still higher prices. Secondly, any specific union membership, on viewing the intensity of consumer demand, the inflated profits of corporations, the successful wage negotiations of other unions, and the well publicized statements of their own leaders, had little reason to doubt but that their own wages would rise in the future. As Mr. Katona pointed out in a recent article in this *Review,*[5] the expected rise in income was an important factor in determining the volume of consumer durable goods expenditure in the postwar period. Thus the anticipations of union members with regard to increases in income, together with the general public's anticipations regarding an increased price level, resulted in a further rise in effective demand and therefore in the price-level.

Professor Morton refers to the fact that labor income rose by $17 billion between 1946 and 1948, and comes to the conclusion that "If labor had no wage increases, part of the $17 billions additional payroll would have been diverted to other groups and prices would still have risen from the impetus provided by non-labor expenditures, though perhaps not quite so much."[6] But if labor had had no wage increases, the government's revenues would have increased substantially, since increments to other income would have been taxed at a higher rate. The Treasury surplus would have been considerably larger and the deflationary consequences of that are obvious.

It must be admitted that in some quarters there was a tendency to explain the postwar inflation solely in terms of trade union action to the exclusion of the more fundamental causes, *i.e.,* the expansion of the money supply and the quickened tempo of its circulation. It is, however, an error in kind to leap to

[5] George Katona, "Analysis of Dissaving," *Am. Econ. Rev.*, Vol. XXXIX, No. 3 (June, 1949), pp. 673-88.

[6] Morton, *op. cit.*, p. 25.

the other extreme and write off as inconsequential the part played by trade unions. Within the framework of a much heightened volume of effective demand, unions exerted a decidedly inflationary effect.

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MEMORIAL

Joseph Alois Schumpeter
1883–1950

I. *The First Three Decades 1883-1914*[1]

Joseph Alois Schumpeter was born at Triesch in Moravia on February 8, 1883. His father was a textile manufacturer and his mother, Joan Marguerite, the daughter of Julius Gruener, a physician in Wiener-Neustadt; he was their only child. Nothing more is known for certain about his forbears. His physical appearance, inherited from his father, suggests a mixed ancestry. He once toyed with the idea that the name Schumpeter came from Italy, but he could find no evidence to support it. As far as we know, the Schumpter tree flowered luxuriantly only once; now it is extinct.

His father died when Schumpeter was four years old. The young widow, then only twenty-six, married Sigismund von Kehler, lieutenant-general in the Austro-Hungarian army, seven years later. Without doubt, his mother was the most important personal influence in Schumpeter's life. She was handsome, talented and ambitious for her son. His devotion to her continued without diminution or disillusion not only to the end of her life but to the end of his.

Schumpeter seems to have regarded his stepfather as a distinguished and impressive figure—witness the frequency of military metaphors in his writing—but hardly as a father. Von Kehler was in command of all Austrian troops stationed in Vienna—a position of social as well as military eminence. From the age of ten, therefore, Schumpeter grew up in the aristocratic milieu of prewar Vienna. From 1893 to 1901 he attended the Theresianum, an exclusive school for sons of the aristocracy, that, like the corresponding English Public Schools, was distinguished for its classical education.

From 1901 to 1906, he attended the University of Vienna as a student of law and economics, and received the degree of doctor of law in 1906. Although he had an almost infinite capacity for work, he must have devoted most of his energies to economics, judging by what he accomplished.

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[1] To save footnotes and to avoid encumbering the text with too many references, I have added a bibliography of Schumpeter's more important publications. Mrs. Schumpeter has published a complete bibliography of his work in the *Quarterly Journal of Economics* for August, 1950. I am also very indebted to her for allowing me to read Schumpeter's notes and diaries and to quote from them. I am also indebted to many friends and colleagues of Schumpeter's who read the manuscript of this article, especially Professor Haberler who saved me a great deal of labor by allowing me to take facts and dates from the manuscript of his article in the *Quarterly Journal of Economics* for August, 1950. My greatest debt, of course, is to Schumpeter himself for his incomparable conversations during the last eighteen years.

He attended the seminars of Inama-Sternegg, the medieval historian and statistician, of Wieser, a sociologist as well as an economist, and of Böhm-Bawerk, the single-minded economic theorist. He debated in seminars with Otto Bauer and Rudolf Hilferding, two of the most brilliant young Marxists of their day. He wrote papers on statistical method, and acquired an immense admiration for the general equilibrium system of Walras, whom he always regarded as the greatest of all theorists. At the end of his five years at the university, he was ready to launch himself as a theorist of great acumen and as a historian of wide learning. More important, the essentials of his "vision" of the social and economic process had already been formed.

In 1906 and 1907, Schumpeter spent several months in England. Many of the doors of English society were open to him. He lived as a fashionable young man in London, visited country houses, and intermingled his social life with occasional visits to Oxford and Cambridge. I have always felt that that year in England was the happiest in his life. He found English manners and English institutions completely congenial. Prewar England was to him the apotheosis of the civilization of capitalism. And only a few years ago he said in a letter: "I never really could understand anyone with the least chance to play some role at a measurable distance from Downing Street, doing anything else."

In 1907, he married an Englishwoman, Gladys Ricarde Seaver, who was twelve years his senior. The marriage very soon proved a failure, but was not formally dissolved until 1920, presumably because of legal difficulties and the fact that, at that time, Schumpeter belonged to the Catholic Church. Thus from the age of twenty-four to the age of thirty-seven, he was precluded from the normal family life I am convinced he would have liked to have. As it was, he lived the life of a *fin de siècle* romantic with all his brilliance and intensity; he convinced his friends, and possibly himself for a time, that that was what he really wanted. His unsettled and inadequate personal life may have accounted in part for his prodigious scientific output. Judging by the comments he frequently made on the sedative effects of successful marriage on the formative years of a scientist's career, he may well have felt that the world had gained what he had lost.

In 1907, Schumpeter and his wife went to Egypt, where he practiced law and managed the financial affairs of an Egyptian princess. In the latter capacity, he performed the financial miracle of cutting rents on the princess's estates in half and doubling her income—by the simple device of appropriating to his own use no more than he was legally entitled to. While in Cairo, his first book *Wesen und Hauptinhalt der theoretischen Nationalökonomie* was published. In this book, he established his mastery of traditional theory and gave some promise of what was to come.

His career in Egypt was cut short by the onset of Malta fever. He returned to Vienna in 1909 and in the same year accepted a professorship in economics at the University of Czernowitz. Although he found the life of that city to his liking, he considered most of his academic colleagues dull and provincial—whatever their merits in their particular fields. He liked to shock them by appearing at faculty meetings in riding boots and aroused unfavorable comment by dressing for dinner when he and his wife were dining alone. But this type of amusement did not compensate him for the distance from Vienna.

In 1911, he was appointed to the University of Graz through the influence of Böhm-Bawerk with the Ministry of Education, despite a solid vote against him by a faculty that was reluctant to open its arms to the *enfant terrible* from Czernowitz. And it never did. Although he carried a heavy teaching load, he contrived to spend much of his time in the national capital—a practice he deplored among his Harvard colleagues—until his resignation from Graz in 1921. He spent the academic year 1913-1914 as visiting professor at Columbia and returned to Austria on the eve of the First World War.

By then the fateful third decade—the years of creative achievement, in his view—was over. *The Theory of Economic Development* was published in 1912 and presented his analysis of the economic aspects of capitalism in what turned out to be virtually its final form. In this work he achieved a directness of exposition and a cogency of argument that he was never again to attain. With *Economic Development*, Schumpeter became famous: the book has become a classic, yet, by his own exacting standards, he failed. He had set out to conquer the world of economics, but he got caught in a web of controversy with Böhm-Bawerk and the Austrian School. Before the world had a chance to consider its verdict, it was embroiled in the First World War. Not till more than thirty years later, so far as I can discern, did he consider trying again for the same kind of success. In 1946, he wrote: "... two months were real work and spelled progress in what I described to interested publishers as a book that should do from my standpoint what Keynes' *General Theory* did from his (which Washington agency now prosecutes dishonest advertising?). But then I had to break off to invest the remaining two months in my *History* which just won't go decently." What there is of this book probably exists only in his undecipherable Austrian shorthand; no manuscript has yet been found.

In 1914, he published his brief and brilliant *Dogmengeschichte* which laid the first foundations for his massive *History of Economic Anaylsis*, which was still unfinished at the time of his death. Although his basic ideas on sociology can be traced to this early period, they were slower in maturing than his purely economic analysis. His theory of imperialism appeared in 1919, his first major article on socialism in 1920, and his theory of social classes in 1927. And it was not till 1942 that he was willing to systematize his sociology in *Capitalism, Socialism and Democracy*. Although in some respects this is his greatest work, he never thought highly of it; and despite his brilliant performance in the field, and his insistence on its importance, he persisted in regarding sociology as the proper occupation for a tired or spent economist.

II. *Interlude 1914-1925*

The war years must have been unhappy ones for him. He was, and described himself as, a pacifist. Although he had no moral objection to war and admired military prowess, he was temperamentally utterly averse to violence and, above all, clearly saw the destruction that was being wrought to everything he valued. He took an active[2] part in the intrigues to negotiate a separate peace for Austria in 1916. In his *Crisis of the Tax State* (1918), he put forward his reconstruction proposals to achieve financial stability through a capital levy, a balanced budget, and foreign borrowing, and to rely for reconstruction on the liberated forces of private enterprise.

Late in 1918 he acted as consultant to the Socialization Commission in Berlin, apparently in a non-political capacity. But in 1919, the incredible happened. He agreed to become finance minister, under socialist sponsorship, in the coalition government of the Austrian Republic. From the beginning the cards were stacked against him. Whatever their motives in appointing him, the socialists distrusted him because he was not a socialist; the right wing distrusted him because he had been the socialists' candidate; and the bureaucrats distrusted him because, from their point of view, he was an amateur. In his personal life he refused to compromise with bourgeois or proletarian standards of respectability; and he was touched, without justification, by the breath of political scandal.[3] But more important he differed basically from the socialists on Austria's external policy. Led by Otto Bauer, they supported union with Germany, while Schumpeter believed that Austria must rely on support from the West. Before he had the opportunity to present his financial proposals to the parliament, he was forced to resign, in the fall of 1919, and inflation ran its inevitable course. Schumpeter was always unwilling to discuss this episode, so one can only conjecture as to his motivation. His sense of history and his modesty would prevent him from believing that he alone could work miracles; his seriousness would prevent him from being merely amused by the ironies of the situation—although they doubtless did appeal to him. There were no compelling personal loyalties. But I suspect there was a strong vein of Quixotism in his nature that on this and other occasions led him to attempt the impossible.

He was then only thirty-seven, with the achievements and the experience of a lifetime behind him. In view of his opinion that all truly creative work is done before the age of thirty, he may well have felt that the time had come to cut loose from intellectual life and start another career—this time as a practitioner of capitalism rather than its diagnostician. In any event, he became president of the Biedermannbank, a private bank in Vienna, and for the time being his scientific work practically ceased. Partly because of economic conditions and partly because of the dishonesty of some of his associates, the bank failed in 1924. Schumpeter lost his personal fortune and went heavily into debt. Characteristically, rather than take advantage of the bankruptcy laws, he paid his creditors in full, partly by writing for the *Deutsche Volkswirt* and partly from his academic earnings over the next ten years. After the disaster he decided to return to the world of scholarship, and accepted a professorship at the University of Bonn in 1925. Again the world profited from his misfortune, and he assured his place in the history of economic thought.

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[2] It is not known precisely what part he took or how active it was, but I do recall one conversation in which he said, "the last time we saw the Emperor."

[3] See Haberler's article (*Quarterly Journal of Economics*, August, 1950) regarding the "Alpine Montan Gesellschaft" affair.

III. *The Years of Maturity 1925-1950*

Shortly before he went to Bonn he married Annie Reisinger, the twenty-one-year-old daughter of the caretaker of the apartment house in which his mother lived in Vienna. He had known her for at least the past five years, and his mother and he sent her to schools in Paris and Switzerland to equip her to be his wife. She was his romantic escape from the barren romanticism of his past. When she died in childbirth within a year of their marriage, Schumpeter was heartbroken and mourned her for the rest of his life. In the same year his mother died at the age of sixty-five. These two great personal losses must have contributed greatly to his feeling that there was not much in store for him but his work, and probably had a good deal to do with his decision to remove himself far from the scenes of his sorrows and disappointments.

Although in ordinary circumstances, he probably would have found the atmosphere of Bonn entirely congenial, as it was he was unable to settle down there. He visited Harvard in 1927-28 and again in the winter of 1930. He returned to Europe by way of Japan—the country that has probably extended him more esteem and admiration than any other. It is not surprising that, at that particular stage of its development, Japan should have greeted Schumpeter with such enthusiasm. His acclaim in Japan leads one to reflect on what might have happened in Europe had he written *Economic Development* at the same time as Marshall wrote his *Principles* rather than twenty years after. In 1932, he moved permanently to Harvard—in a mood of resignation rather than enthusiasm. In this I doubt that he was motivated by a desire to leave the sinking ship of Europe. Temperamentally, he was more inclined to go down with it.

For twenty-five years, from the time he went to Bonn till his death, he subjected himself to a ruthless program of incessant work: writing, teaching, lecturing and encouraging his colleagues and students in countless informal ways. After he came to Harvard, he studiously avoided any attempt to exert a direct influence on practical affairs. His main purpose was to build on the foundation he had laid before the war, to test his earlier conclusions and to modify them where necessary in the light of his historical and statistical research. And his last years, through his *History*, were devoted to a supreme effort to hasten the progress of economics towards scientific maturity. His years in Bonn were consumed largely with a work on money that never saw the light of day. I am told that, in 1930, he tore up one complete manuscript on the publication of Keynes' *Treatise on Money*; and, although he had completed another by 1935 he never published it. But apart from that, his stream of important articles, his second edition of *Economic Development* and his journalistic contribution to the *Volkswirt* were more than enough to absorb all the energy of any ordinary man.

During the first years at Harvard, his main preoccupation was *Business Cycles,* whose scope is more correctly indicated by its subtitle "A

Theoretical, Historical and Statistical Analysis of the Capitalist Process." It was essentially an effort to clothe *Economic Development* with historical and statistical fact. Every one of its thousand pages clearly came from a single pen. It is certainly one of the great *tours de force* in the entire literature of economics. But it is, of course, far more than that. Apart from the light it sheds on the capitalistic process, both its merits and its shortcomings will provide an indispensable guide to research in the future. The book appeared in the fateful summer of 1939, and the chaotic years that followed have deprived it of all but a fraction of the attention it deserves. It is a sad irony that the success of *Economic Development* should have been marred by the First World War and that of *Business Cycles* by the second.

Capitalism, Socialism and Democracy appeared in 1942 and was an immediate success. He then commenced work on the *History*. When he began the book, he evidently expected it to be a short undertaking, possibly an expansion of *Dogmengeschichte*. He became immersed in it in 1943 because, as he said in a letter, "It is simply the subject, among all those at hand, that is furthest removed from current events." At that stage he had planned not only the *History*, but a treatise on money, a general theory, further sociological work, a theory of esthetics and several novels to express those of his ideas that could not be fitted into a scientific mold. As it was, the *History* caught him in its toils. While I cannot help regretting the abandoned program, he did devote most of the last seven years of his life to the task that probably he alone, of all living economists, could perform.

The *History*, however, did not prevent him from continuing his brilliant series of biographical articles. His interest in biography had begun long ago with his articles on Walras and Böhm-Bawerk. His more recent articles on Taussig, Keynes, Pareto and Mitchell are written with an insight and sympathy that leave him with no modern rival except Keynes himself. And not the least reason for interest in these essays is that they could never have been written by a man who did not understand himself.

At Harvard, Schumpeter regularly taught courses in advanced theory, business cycles, history of economic thought and socialism. He was profligate in the time he would spend with any student with the merest spark of an idea. His lectures were models of eloquence and wit. His apparently casual manner concealed a studied performance and painstaking preparation. But he lectured to those who had ears to hear; those who merely took notes left his classes with the sense of frustration he desired to produce in them. Those whose hearing was less than perfect frequently did not realize how wise he was till years afterwards. But there was an unforgivable omission: his students never heard one word of Schumpeterian economics. They were left to discover that for themselves, and appreciated it all the more when they did.

Throughout his life Schumpeter gave an inordinate amount of his time to the study of mathematics and to the encouragement of its study by others. His first publication was on the use of mathematics in economics, and while his interest remained, his hopes for it only began to wane during the last years of his life. One of the many ironies in his life is that his ardent support of mathematics in economics drove his students away from the fields of intellectual endeavor that made his own work so significant, and produced many results that he considered sterile. He always retained the forlorn hope that mathematics might produce the dynamic counterpart of the Walrasian system.

He was president of the Econometric Society from 1937 to 1941 and, belatedly, president of the American Economic Association in 1948. The painstaking attention to detail and the organizing skill he showed in arranging the program for that year effectively dissipated the impression of casualness and helplessness in practical matters that he strove so sedulously to cultivate.

During his first years in Cambridge, he lived under the paternal and benevolent care of the great Taussig at 2 Scott Street, but in 1937 he placed himself by marriage under the less rigorous but no less benevolent auspices of Elizabeth Boody. Without her companionship and single-minded devotion he might well have sunk into a state of intolerable melancholy and loneliness. In Cambridge, but especially at her beautiful place at Taconic, Connecticut, she provided him with what he had never really had before—a home.

The war years were unhappy and depressing ones for him. Not only was he overcome, as always, by the futility of war, and the destruction of his values that it would bring, but he alienated many of his friends by taking extreme positions when he felt that they were carried away by the emotions of the moment. Needless to say, his opinions in 1940 would have evoked a different response in 1950.

I close this section with an entry from his diary on February 8, 1945: "Good morning friend, how does it feel to be sixty-two—and definitely old and definitely to feel old? One thing to be recorded is my humble thanks to the United States. No repining, no sterile regrets, no sorrow about the state of things: acceptance rather and a feeling that it could be worse." I think that describes his state of mind until he died in his sleep at Taconic five years later.

IV. *Personality and Vision*

In his essay on Pareto, Schumpeter said: "Could we confine ourselves to Pareto's contributions to pure theory, there would be little need for glancing at the man and his social background and location. But into everything that was not a theorem in the pure logic of economics the whole man and all the forces that conditioned him entered so unmistakably that it is more necessary than it usually is in an appraisal of scientific performance to convey an idea of that man and of those forces." However true that is for Pareto, it is more true for Schumpeter, as he himself well knew. And the mere chronological record of his life does not seem to me to be enough. While it is a hazardous business, we must explore the deep pool of his personality, although, as he says of Pareto, it can never be "drained so as to show what is at the bottom of it."

To explain his personality, I am convinced we have to go back to his earliest childhood and recall that he spent most of his first ten years as the only son of a young widowed mother. Of his devotion to his mother there is no question, but the important thing is that it seems to have had a profound effect on his relations with others. The facts that his first wife was twelve years older and his second, twenty-one years younger than he attest to this. Similarly with men, he was most at ease with those toward whom he had filial feelings—like Böhm-Bawerk or Taussig—or with those towards whom he felt paternal—like most of his close friends at Harvard. In these relationships he was superb, but he was not equally successful with his contemporaries. He found it difficult to persuade. He could win every point but fail to win the argument. He could fail in persuasion where others far less brilliant could succeed.

He was very sensitive about this, and the failure of *Economic Development* to be the sweeping success it might have been probably reinforced his sensitivity. In fact, time and again he seemed to stack the cards against himself so that he could be sure to lose with honor. As I have suggested, this may explain his political career; it may explain his refusal to submit his own doctrines to his students; and it may also explain the paradoxes in his later writing. *Capitalism, Socialism and Democracy* in particular is full of ironic twists that provide cold comfort for anyone who agrees with him. Capitalists, socialists and intellectuals are all provided with strong emotional grounds for rejecting the argument.

The second point of decisive importance in the formation of his character is, I believe, the fact that while he was of middle class origin and undistinguished lineage, he was brought up in a highly aristocratic environment. I am not alone in this opinion; it seems to have been widely held by those who knew him in Vienna. It is difficult for a young boy to be neutral to such a situation. He is either overwhelmed by it or sets out to master it. Schumpeter was of the latter sort. He adopted the manners, the habits and the tastes of the aristocrat. I think the Theresianium also had much to do with instilling in him the passion for perfection and the spirit of intellectual independence that were so prominent throughout his whole life.

But he must have realized that conspicuous success in the normal aristocratic pursuits—the diplomatic service or the army—was unlikely, and, besides, they would not afford him the intellectual life he demanded. To be anything less than first class in his chosen line of endeavor would have been unthinkable to him. He therefore had to strike out on a line of his own.

He was neither aristocrat nor bourgeois, but he had no resentments, as did Marx. And he had a great intellect. In his essay on Marshall's *Principles* he writes: "I confess that few things are so irritating to me as is the preaching of mid-Victorian morality, seasoned by Benthamism, the preaching from a schema of middle class values that knows no glamor or passion." At the least, we have found fertile ground in which his vision of the innovating entrepreneur, who did have glamor and was not dominated by middle class values, could grow. Such conjectures are of course not capable of proof; but no other economist had his vision and no other was exposed to environmental influences so favorable to it. There is a further cogent point. I have already referred to his admiration for England; in his opinion, the strength of the

English system of government lay largely in the willingness of its aristocracy to recruit to itself the strongest elements of the bourgeoisie.

Although I feel confident in this analysis of Schumpeter's character, I would have hesitated to publish it had I not found among his papers notes for a novel entitled "Ships in the Fog." There are only a few paragraphs that are not in shorthand. They begin:

> Now let me be quite pedantic about it. Or else you'll never take in what I'm going to paint. Now backgrounds, racial and social, are essential in order to understand what a man is.
>
> Well he—let us call him Henry—was an Englishman by birth. But by race only on his mother's side. His father, before he acquired English citizenship called himself an Italian. But the matter is more complicated than that. The family belonged to the fringe end of the commercial and financial set of Trieste which racially was a mixture defying analysis. Greek, German, Serb, and Italian elements and presumably all of them contributed towards making our hero's paternal ancestry. His father had emigrated to England as a representative of Triestian shipping interests and married an English girl with a great pedigree and absolutely no money.
>
> Their only child was four years old, when, well on the way to a considerable financial position, the father was killed on the hunting field. And the mother was henceforth the one great human factor in Henry's life. She was an excellent woman, strong and kind and amply provided with the delightful blinkers of English society. She did her duties in a way which can only be called manful, though it was truly womanly when I come to think of it. To make him an English gentleman was her one aim in life.
>
> She had not much money . . . but she had connections which she resolutely exploited for her darling—that was among other reasons why to her dying day he belonged to one of the four or five best clubs though he hardly ever set foot in it and why he was seen on terms of equality in houses that rank much above what is referred to as the smart set, though, at the time of this story, he had ceased to frequent them and the corresponding country houses. But I want to make this quite clear—the social world was open to him from the beginning and shut only when he did not trouble to go and that meant much. No complexes. No faked contempt. No hidden wistfulness.
>
> Disappointment was in store for her. Disappointment all the more bitter because realization was so near; all the more bitter, in a sense, precisely because in every other respect he gave her satisfaction and always not only felt but also manifested in every word and act his unconditioned attachment to her, his unbounded confidence in her. Confidence—not the right word. . .
>
> That's it! . . . Where was he at home? Not really in England! Often he had thought so but ancestral past had asserted itself each time. But neither in France or Italy though he found himself drifting to both whenever he had a week or a month. Certainly not in Germany or what had been the Austro-Hungarian Empire.
>
> But that was not the salient point. More important than country means class —but he did not with subconscious allegiance belong either to society or the business class or the professions or the trade union world all of which provided such comfortable homes for everyone he knew. Yes—his mother's corner of society had been his as long as she lived.
>
> And for modern man his work is everything—all that is left in many cases. . . .

Doing efficient work without aim, without hope. . .
No family.
No real friends.
No woman in whose womanhood to anchor.

It is hard to make out the plot of the novel except for its broad outlines. Henry's mother wanted him to enter politics. The way seemed clear but suddenly he found he could not go on with it. He spent some years in a state of indecision and revision, but then decided to go into business in America, not for the sake of making money but for the sake of the intellectual problems that business presented. One characteristically Schumpeterian incident: Henry instructed his secretary to buy up a controlling interest in the stock of the business he was interested in. The secretary objected that Henry did not think much of the directors. Henry replied: "How good must be a business that can stand such directors." All this occurred in 1932. Henry was approaching forty. How the venture turned out, how the heroine fitted in is stated, if at all, only in shorthand. But, fortunately, enough is written in English to throw a bright light on the personality of the author.

It is easy now to imagine how Schumpeter reacted to the intellectual influences to which he was exposed at the University of Vienna. The severe intellectual discipline of his education would naturally lead him to admire the logical structure of the Walrasian system, but it knew "no glamor or passion." Those very qualities in the Marxist doctrine obviously attracted him strongly, but with his personality and his passion for coherent logic he could never be a Marxist. If anything was anathema to him, it was a proletarian state. And furthermore, in the light of his personality and his circumstances, it seems to have been the most natural thing in the world for him to become an economist, and equally natural for him to refuse to be merely an economist.

Schumpeter himself studied the personalities of his biographical subjects in order to discover what he called their "ideological bias." While he recognized and insisted that "vision" was essential, as a pre-scientific stage, to any advancement of knowledge, he hoped that scientific research could eliminate the element of bias and reveal the element of objective truth. In this I think he was unfair not only to others but especially to himself. I think he should have recognized that there can be ideological insight as well as bias. In fact, can anyone who is thoroughly attuned to the society in which he lives take a comprehensive and critical view of it? Or if he does, is he not bound, almost as a matter of definition, to take an urbane and optimistic view of it? Is it not the province of exceptional men, exceptionally conditioned, like Marx or Schumpeter, to perform a critical diagnosis of the body politic? Ideology there must be, but the baffling question is to decide whether, in particular cases, it results in bias or insight; and the task becomes even more difficult when we realize that the world is a different place because some exceptional men were able to put forward their ideologies in the guise of objective truth. But as Schumpeter insisted, the search for truth demands that the pre-scientific vision be identified.

V. *The Schumpeterian System*

I shall now give a summary, and therefore inadequate, account of Schumpeter's analysis of capitalism and capitalistic development. But before beginning, it is worth recording his own acknowledgement of the dominant intellectual influences in his life, Walras and Marx. In the preface to the Japanese edition of *Economic Development*, he states that in writing the book: "I was trying to construct a theoretic model of the process of economic change in time, or perhaps more clearly, to answer the question how the economic system generates the force which incessantly transforms it. . . . To Walras we owe a concept of the economic system and a theoretical apparatus which for the first time in the history of our science effectively embraced the pure logic of the interdependence between economic quantities. But when in my beginnings I studied the Walrasian conception and the Walrasian technique (I wish to emphasize that as an economist I owe more to it than to any other influence), I discovered not only that it is rigorously static in character . . . but also that it is applicable only to a stationary process. . . .

"It was not clear to me at the outset what to the reader will perhaps be obvious at once, namely, that this idea and this aim are exactly the same as the idea and the aim which underly the economic teaching of Karl Marx . . . I am not saying this in order to associate anything that I say in this book with his great name. Intention and results are much too different to give me a right to do so."

What this means, in my opinion, is that Walras provided the foundations for his edifice, but Marx suggested to him the method for building on that foundation a structure that reflected his own "vision." The essentials of that structure are:

1. Were it not for the forces making for "development," the capitalist system would settle down to a stationary condition of Walrasian equilibrium in which the whole national product was imputed to the services of labor and land. In comparison to development, the evolutionary effects of savings from the "circular flow" and population increase are of minor importance and can therefore be ignored. The assumption of perfect competition is modified in Schumpeter's later work, one of the great contributions of which is his discussion of monopoly and competition in the framework of capitalistic development. Consequently, his concept of equilibrium becomes less definite, but it retains a central position in his theory.

2. The capitalist system contains within it forces making for change and development. Since there is no possibility of profit in the circular flow, those who seek profits must introduce new products, contrive new methods of production, open new markets, discover new sources of supply or win new strategic positions in industry, that is, carry out "new combinations or innovations." The entire tendency towards equilibrium means resistance to change: the social environment reacts against novelty, the ordinary businessman is strongly inclined to continue on traditional lines, and change means a venture into the unknown. The exceptional ability of the exceptional man is therefore required to carry out innovations. And furthermore, in an industrialized

economy the richest prizes are to be won through successful entrepreneurship—prizes that cannot be described in terms of hedonistic enjoyment but in terms of the "dream and the will to found a private kingdom," "the will to conquer; the impulse to fight, to prove oneself superior to others, to succeed for the sake, not of the fruits of success but of success itself" and finally "the joy of creating, of getting things done, or simply of exercising one's energy and ingenuity." Here is the central tower of Schumpeter's structure, and the rest of the building is designed to emphasize its impressiveness.

3. To carry out his designs, the entrepreneur must be able to raid the circular flow and divert labor and land to investment. Such savings as are made from the circular flow are inadequate for the purpose. He must be provided with "credit" furnished to him and created by "capitalists." Capital, in Schumpeter's terminology, is, in fact, the means of payment available at any time to entrepreneurs; and the only credit that is essential to the capitalist system is the credit extended to them.

4. Since the process of imputation excludes the possibility of interest emerging from a circular flow economy, the only available source of it is entrepreneurial profit. If there were not profits for a sufficient period of time, interest would disappear. As it is, so long as there are prospects of profit, entrepreneurs are prepared to pay interest to capitalists for the use of their money. And once interest exists for this reason, it permeates the entire economy and appears to be a permanent revenue arising from the productive process. Schumpeter performed a great, though neglected, service to economics by his insistence that interest could be adequately explained only in the context of a monetary economy. But he involved himself in needless controversy and deflected attention from the most valuable part of his theory by defining his circular flow economy as one so devoid of uncertainty and change that interest could not occur in it. He could have accepted Böhm-Bawerk's theory of interest as a partial explanation without weakening his own position.

5. Development does not take place continuously, but innovations appear in "swarms," because the innovations undertaken by the most enterprising and venturesome create a favorable climate for others who are less venturesome to follow. This tendency is reinforced by the general conditions of prosperity produced by the creation and expenditure of new purchasing power. Schumpeter also recognizes that the low prices and unemployment resulting from a preceding depression help to explain the swarms of innovations, but he excludes this from his explanation since he considers it methodologically necessary to begin with an initial state of equilibrium. This is the basic element of the prosperity phase of the business cycle, but, in addition, rising prices and expanding purchasing power induce the secondary boom.

6. The boom itself generates conditions unfavorable to its continued progress. Rising prices deter investment; competition of new products with old causes business losses; and entrepreneurs use the proceeds of the sale of their new products to repay indebtedness, and hence start a period of deflation. These factors, rather than financial crises, are the basic causes of depression, which consists of the process of adaptation to innovation plus the phenomena

of secondary deflation. Eventually, however, adaptation is complete, deflation comes to an end and equilibrium is restored.

7. The system so far described contains no obstacles to continued development. It is not haunted by the specter of diminishing returns and gives rise to no economic contradictions of the Marxian type. In fact, if left to itself, capitalism not only achieves spectacular increases in total real income, but is also a powerful engine for the redistribution of *real* income. Schumpeter's point that "the capitalist achievement does not typically consist in providing more silk stockings for queens but in bringing them within the reach of factory girls for steadily decreasing amounts of effort" has been consistently overlooked by economists and especially by statisticans who deflate all incomes by a single price index.

8. Schumpeter's belief in equilibrium as the central norm of his system precludes the possibility of the savings-investment dilemma in the absence of interference with its operation by the state. But that is precisely where contradictions do occur. The capitalist system itself generates the political and social attitudes that ultimately destroy it. The growth of big business places capitalism in a position particularly vulnerable to political attack and deprives the system of the vigorous individual entrepreneur who is most willing to defend it. The growth in political power of the bourgeoisie ousts from leadership the old aristocracies who knew better how to rule than the businessman. It is a typical Schumpeterian paradox that, as we noticed in the case of England, recruits from the bourgeoisie invigorate the aristocracy before bourgeois power eventually destroys it. Possibly most important, the rationalism of capitalist civilization produces critical attitudes that are necessarily directed towards the capitalist system itself. Thus anticapitalist policies, particularly modern tax systems and their expenditure counterparts, prevent the system from functioning according to its logic. And the political ineptitude of the businessman leaves him defenseless. These are the areas in which we must look for the true explanations of vanishing investment opportunity and tendencies toward stagnation. In a way, Schumpeter is the most uncompromising stagnationist of them all.

9. He recognizes that the capitalist system can be kept alive by public income generation but he describes such a state as "capitalism in the oxygen tent—kept alive by artificial devices and paralyzed in all those functions that produced the successes of the past."[4] Up until very recently he held that the inevitable outcome of capitalist decay was socialism, but in his article on the English economists and in conversation he seemed to be veering to the view that what he called "laborism" might have a long, dull and unimaginative future.

These paragraphs are confined to Schumpeter's analysis of the capitalistic process not only for reasons of space but because these are the central ideas that dominate his analysis in other fields such as socialism and imperialism.

[4] I have taken much of paragraphs (7), (8), and (9) from his article "Capitalism in the Post-war World." I thought it better to rely on Schumpeter's summary of his own views than to attempt to summarize the argument of *Capitalism, Socialism and Democracy.*

This summary is, of course, far too brief to do justice to the subject but brief enough to bring out the unity of the system and to show how it was built around his vision.

VI. *The Advancement of Science*

As we have already seen, virtually all of Schumpeter's system was worked out during the first thirty years of his life. I am sure that he was deeply aware of the extent to which he had depended on his own intuition for his theory and that *Economic Development* did not measure up to his scientific standards. Consequently, a major part of what I have called his years of maturity were devoted to testing his theory by statistical and historical research, and *Business Cycles* is the embodiment of his efforts. At the same time, his self-consciousness about his own work and his efforts to increase its scientific stature made him deeply conscious of the scientific inadequacy of economic doctrine as a whole. His *History*, as well as his biographical essays, is essentially a work in the epistemology of economics.

The theory of *Economic Development*, in Schumpeter's judgment, emerged practically unscathed from its exposure to history and statistics in *Business Cycles*. In fact, the only significant change is that Schumpeter gave up the idea of a single cycle and adopted instead the complicated structure of Kondratieffs, Juglars, and Kitchins, all of which, however, arose from the process of capitalistic development. His researches compelled him to give greater weight than he had before to the effect of outside disturbances on the system and to recognize the existence of inventory cycles, cobweb cycles and the like that originate from within the system. But he insisted that the fundamental explanation lay in his vision of the capitalistic process. As one reads the book, one finds it increasingly difficult to decide to what extent Schumpeter is writing history in terms of his theory and to what extent he is using the empirical information to test the theory. The change from the single cycle to the three cycle pattern is of course an example of the impact of the facts on the theory. But in general I believe the main effect of the book is to interpret the facts in the light of the theory.

My impression of his method is as follows. *Business Cycles* begins with an elaborate and cogently argued restatement of his theory. He then adduces historical evidence to show that innovation has in fact played a great part in development. Then in the light of the theory he infers that the process of development must have been of a cyclical character. The historical course of events is then recorded in terms of the theory, with some modifications of the theory in the process, but with no essential change in the grand design.

In *Business Cycles*, Schumpeter has, in my opinion, successfully demonstrated that his theory is not excluded by the empirical evidence, but he has not excluded other possibilities. Could not the evidence be used equally persuasively to support the thesis that, in the absence of disturbance, innovation would proceed continuously, but that business fluctuations do arise from the influence of external disturbances? But the importance of this book does not rest on the verification of a particular theory. As a study of history, its eminent stature is sure to grow. Whether or not the original theory is correct, history that is marshalled in terms of an explicit theory seems, at least to a non-historian, more suggestive and meaningful than history that purports to be theoretically neutral—provided it is written by a scholar of Schumpeter's integrity.

I recently asked a colleague how far *Business Cycles* had advanced economic knowledge. He replied: "Not at all; it will not do so until we have a historian who is Schumpeter's equal who can point out the flaws in it." It is hardly necessary to state that my appraisal of the book is a commentary on the state of economic knowledge and the difficulty of its subject matter. No other work combines theoretical, historical, and statistical research with greater mastery, and can any other theory make a better claim to validity? And has any other author subjected his own theory to such an exhaustive and conscientious process of appraisal?

Schumpeter must have realized that he had failed to establish a body of scientific knowledge that was independent of his ideology, and from that experience, he may well have concluded that it was impossible for anyone else to effect a complete divorce between science and ideology. Nevertheless, the scientist should continue to make unremitting efforts to do so. That is the purport of his Presidential Address to the American Economic Association.

Therefore, in his *History* and his later biographical essays, particularly those on Keynes and Pareto, he undertook the task of isolating ideological bias in the entire body of economic thought. But the further his studies carried him, the more ideologies seem to have loomed in importance. In fact, one of the chapter headings of the *History* is: "Is the History of Economic Thought a History of Ideologies?" Of course, one can argue that all that is irrelevant, that once a theory sees the light of day, it should stand on its own feet and be considered on its merits. That would be all right if we did possess techniques for testing economic theory, but it may turn out that the very nature of society prevents such techniques from ever being found.

As his awareness of the importance of ideologies increased, Schumpeter became increasingly dissatisfied with the tools of scientific analysis. His high hopes for econometric work, on which he had placed such store in the 'thirties, waned visibly in the 'forties. His emphasis shifted steadily from theory to history. While he regarded history, statistics and theory as indispensable for scientific progress, he states in the *History*: "I wish to state right now that if, starting my work in economics afresh, I were told that I could study only one of the three, but could have my choice, it would be history that I would choose."

It is impossible to convey, in advance of its publication, an adequate impression of his *History*, of the depth of his scholarship, of the breadth of his knowledge, and above all of the *élan*, the enthusiasm and the confidence with which he immerses himself in every period of economic thought. He undertook a task that no other economist could have attempted and that perhaps even he could not have finished. It is not inappropriate that it will be published as an uncompleted work.

VII. *Policies and Politics*

Practical men have not been in the habit of consulting Schumpeter's work, and in his years in America he never made the slightest effort to persuade them to—partly because he studiously refrained from propounding "bold new programs" and partly because of his general reluctance to persuade. He felt, nevertheless, that the practical man was making a mistake. Several times his notebook of aphorisms contains the wistful entry: "Most tragic of all sights: a blind man who hits his seeing-eye dog." Let us look at a few examples of the practical wisdom on contemporary matters that he did dispense:

1. In his article on "Capitalism in the Post War World," in 1943, he states: "Everybody is afraid of a post-war slump. . . . Viewed as a purely economic problem the task (of reconstruction) might well turn out to be much easier than most people believe. . . . But in any case, the wants of impoverished households will be so urgent and so calculable that any post-war slump that may be avoidable would speedily give way to a reconstruction boom. Capitalist methods have been equal to much more difficult tasks." But he felt that all this would be unlikely to come about because the strength of the bureaucracy and of labor would succeed in perpetuating the wartime system of economic controls. This country did get rid of its controls and did have the prosperity Schumpeter believed possible. Other countries that retained controls did not fare so well. While we cannot infer from those facts that Schumpeter's entire diagnosis was correct, at least it cannot be ignored.

2. In 1942, in *Capitalism, Socialism and Democracy*, he estimated that the American economy under capitalism was capable of doubling real output per head in the course of fifty years; and if that estimate is correct, he adds, "It is easy to see that all the desiderata that have so far been espoused by any social reformers—practically without exception, including even the greater part of the cranks—either would be fulfilled automatically or could be fulfilled *without significant interference with the capitalist process*." The President's Council of Economic Advisers reached the same conclusion eight years later, and there is no telling how much earlier it was all perfectly clear to Schumpeter.

3. As a third example, consider Schumpeter's rejection of the stagnationist thesis as set out in the final chapter of the second edition of *Capitalism*. While it is impossible to accept as proved his contention that stagnation can only arise from anti-capitalist attitudes and policies, his warning that there may be dangerous contradictions in attempting to avert stagnation by adopting such policies and attitudes is heeded much more today than it was in the 'thirties.

This list could be readily expanded with economic and non-economic examples. Recall that Austria did have to look to the West for help after the First World War and consider his views on Russia in the chapter just referred to. On the other hand, Schumpeter weakened his position in the contemporary scene by his refusal to discuss issues in terms of the Keynesian analysis which was a main preoccupation of most of his fellow economists. His aversion to Keynesian ideas of the baser sort is readily understandable, but his main objection was that, in his opinion, Keynes, next to Marx, cultivated the intellectual soil in which anti-capitalist attitudes flourished. This basic objection prevented him from using Keynesian ideas to improve his own system. Surely monetary and fiscal policies that mitigated secondary booms and depressions would be entirely in accord with his diagnosis of the business cycle and have no anti-capitalist undertones.

Apart from his writing, many of those who knew Schumpeter have frequently felt afterwards that they were carried away by the emotions or the events of the moment while he retained his Olympian calm, however much, from a purely personal point of view, he abhorred what was going on. All this does not mean that I believe Schumpeter could have been a good minister of finance or a successful chairman of the Council of Economic Advisers. But I do believe that Presidents and Prime Ministers should have consorted with him in those rare moments they could spare from being politicians. For Schumpeter was not a politician, and, for reasons that go deep into his personality was unable or unwilling to become one. But he clearly understood what was required for political success.

One of the main themes for his Walgreen lectures in Chicago was to be the relation between policies and politics. In the rough notes he had made for the lectures, he states: "Only in a very special sense can we speak of a nation's policy or policies. In general declared policies are nothing but verbalizations of group interests and attitudes that assert themselves in the struggle of parties for points in the political game, though every group exalts the policies that suit it into eternal principles of a 'common good' that is to be safeguarded by an imaginary kind of state. Nobody has attained political maturity who does not understand that policy is politics. Economists are particularly apt to overlook these truths."

VIII. *Conclusion*

I have not succeeded in bringing out many of the most admirable traits of Schumpeter's character. The liveliness of his wit and the elegance of his manner often concealed the simplicity and the sincerity in his nature. His successes in the lecture hall, the classroom, or the drawing room were no greater than his successes in winning the affection of children. He could meet them on terms of complete equality and they blossomed under his influence. His warm and generous friendship once given was never withdrawn. It is not for his spectacular qualities that he will live in the hearts of his friends.

But most of his later life was that of the solitary and reflective, but impatient, scholar; and no one was invited to share it. His work was too much his own to be discussed. While he sometimes overloaded himself with equipment furnished by others, he made his intellectual journeys alone. His study was the workshop of the individual craftsman. By tearing pages out of periodicals, collecting reprints and limiting himself to the books he really used, he was able to keep most of the tools he needed within easy reach. In addition, there were his own notes. Almost everything he thought, he wrote down. He went over his famous slips of yellow paper at the end of the day and transcribed what he thought worthwhile. And he was able to use what he had written years before; for part of his *History*, he relied on notes he had made in the British Museum in 1907. Thus he pursued his craft among the hills of Connecticut unimpeded by computing machines, research staffs and other instruments of mass production.

He entered the more scintillating of his daily reflections in his book of aphorisms; I quote a few of them: "The best way to spoil a point of view is to make it a matter of principle." "Of all the reasons for the failure of able men the most important is inability to wait." "Sanguinary revolution is the sadism of the well behaved radical." "Strength wins not by being used but by being there." "The curious feeling when one is dying from another cause on a sinking ship." "Equality is the ideal of the subnormal, but even the subnormals do not desire equality but only that there be nobody better." "There is a kind of humane tolerance that is nothing but lack of dignity."

His stern self-discipline required him to grade every day for his intellectual performance. The poorer days received a grade of zero and the best, one. And from the daily grades he built up to assessments of the weeks, the months and the years. His standards were such that he hardly ever satisfied himself. Here are some typical weekly comments: "full on the face of it, but God knows what good," "full but not very successful," "monotonous struggle," "getting into stride?," "no history, seen many people," "ill in bed most of time, no math, no nothing," "no math, no Greek."

Towards the end of the summer of 1945, he made a still longer appraisal:

"Looking back on these months and on the weeks that are still left, and looking back on my life in the process, three things stand out.

"(1) Always the same mistakes committed and the same type of strength and weakness displayed.

"(2) The story might be written in terms of lost opportunities (though of course that stands out in retrospect); there were those that were seized and used promptly enough.

"(3) Yet there is no regret—if I had used every one of those opportunities I should not have done a better job of it all—perhaps even the contrary, for success up to the hilt with any one of them would have stuck me in the particular line and not only narrowed me but landed me in uncomfortable situations [and then some shorthand]. Ease me gently to my grave."

And the entry concludes:

"Never grudge the time
  (a) to think
  (b) for a bit of math."

ARTHUR SMITHIES

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BOOK REVIEWS

Economic Theory; General Economics

A Survey of Contemporary Economics. By H. S. Ellis, editor. (Philadelphia and Toronto: Blakiston, for the American Economic Association. 1948. Pp. xv, 490. $4.75.)

This volume, read apart from the editor's preface, is not obviously much more than a collection of thirteen essays by as many economists of repute on as many different topics having in common little more than that all the topics dealt with have claims of some kind or degree on the attention of some economists. There is a real temptation to the reviewer to appraise the volume on this basis, since he can then follow the easy procedure usual in dealing with collections of miscellaneous essays of picking and choosing for comment the topics or the details with which he is most familiar. This volume, however, is the product of a serious and large-scale experiment by our Association, and in the official journal of the Association it should be reviewed in the light of the specific purposes which it was planned to serve.

The volume itself, unfortunately, gives much too scanty and vague information as to the nature of the original plan, the procedures by which the plan was formulated, the instructions given to the participants by the editor, and the extent to which the contributors adhered to these instructions. Each essay was commented on by two "critics." We are told nothing of transactions between editor, contributors, and critics. Such information might be dull reading for the ordinary reader, but since this is an experiment, to be repeated if the results are judged to be promising, it is information vital for judicious appraisal of the original plan and for elicitation of anything but random suggestions for revision of plan and procedures in case the venture should be repeated.

We are given two rather vague statements as to the purpose of the volume. According to the editor's preface, "The primary purpose of the present volume is to provide the economist outside a particular field an intelligible and reliable account of its main ideas—both analytical devices and their practical application to public policy—which have evolved during the last ten or fifteen years." According to a foreword, the purpose the American Economic Association had in mind in sponsoring and financing this volume was that it should serve as "a periodic review of economics."

These seem to be quite distinguishable purposes, both no doubt highly commendable, but unlikely to be well served by a single plan and a single volume. For appraisal of the final outcome, it would have helped if we had been told whether the contributors and critics were made aware of both purposes, and if not, which one they were asked to attend to.

The contents of the volume suggest that it was the first purpose which the contributors were asked to serve, and it is only the first purpose which the volume does serve with any substantial measure of effectiveness. It does incidentally provide material for the second purpose, but so would even a random collection of essays by competent specialists in a variety of economic "fields." Even with respect to the first purpose, however, the contents of the volume suggest that the contributors were left great latitude as to the period to be covered, as to the definition of "fields," as to whether only *American* literature or only literature in ***English*** was to be treated as relevant, as to the extent to which appraisal as well as recording was expected, as to the stress to be put on novelties of analysis or of policy-conclusions as distinguished from survivals of earlier thought, and as to the scope which the contributors could appropriately give to riding their more-or-less private hobbies.

More unity of design and purpose should, I think, have been pressed upon the contributors. Several of the contributions are too much a mere record or catalogue of activities or concepts, or are too narrow exercises in particular techniques, or too much confined to the exposition of the personal views of the contributors with respect to a particular problem or particular tools of analysis used in particular fields, to be at all satisfactory as accounts for non-specialists of recent developments in analysis and in applications to policy-problems in the fields concerned.

Most of the essays, however, have performed this task commendably, and several have managed at the same time to do adequate justice to the record while making a substantial contribution by tracing the conflicts and the possibilities of synthesis between different prevalent approaches to the problems of their field. The ideal performance would call for a large measure of self-abnegation, of objective reporting of what was prevalent, even if what prevailed was not wholly approved of by the contributor, but with aid provided to the non-specialist so that he could reach some judgment of his own as to the merits of recent developments in the various fields. More than half of the contributions, in my judgment, either meet this test or come fairly close to meeting it. There are not more than three of the essays which I would be inclined to regard as definitely unsatisfactory, because too narrow in scope to be informative to non-specialists as to the major lines of recent development in particular fields, or because they do not reveal what it is in their fields of work which make them significant and presumably interesting to substantial subdivisions of our fragmented profession. On the whole, I regard the experiment as fairly successful and as one which with more advance planning and more exercise of discipline over the contributors would be well worth repeating every decade or so.

If my experience is typical, there is enlightenment in this volume for economists, and food for fresh thought, not only with respect to the fields in which they are not specialists but also with respect to their own fields of concentration. More extensive annotated bibliographical information, however, would for most of the essays have been well worth the space it would have entailed, both for specialist and for non-specialist readers. Not even the full-fledged specialist nowadays becomes aware of all the important contributions to his field while they are still comparatively fresh.

The contributors, moreover, were chosen predominantly, perhaps wholly and deliberately, from among the safe, middle-of-the-road members of the profession, with respect both to their policy-attitudes and their methodological predilections. The result is that the volume is representative only of the patterns of value-judgment and the methods of analysis adhered to by the "center" portion of our profession. The social reactionaries and the Marxians, the fortune-tellers and mechanical quantifiers, the apostles of anti-intellectual institutionalism as gospel and program, the Veblenians, the extreme Keynesians and the extreme anti-Keynesians, the exponents of uninhibited central planning and the exponents of extreme *lassez-faire*, get scanty mention where mentioned at all. Even with the aid of the index I cannot find any reference to what are assuredly the important facts that during the period covered work in the various fields was being carried on and government policy strongly influenced by "scientific" forecasts that the end of the War would be followed by anywhere from 8 to 12 million unemployed unless huge federal deficits were planned, and that American population would soon reach its peak, although the "stagnant economy" thesis does get some attention. Whether we like them or not, these are all significant phases of the record in recent years of our profession. For non-specialists and for laymen, moreover, it was these phases of our operations which attracted most attention, sympathetic or hostile, while they were under way, and they were significant factors in determining the opinions of our profession which outsiders reached. The editor hopes that "for most of the less abstruse and technical subjects . . . the qualified layman . . . will also read with profit." I would not deny the profit, but I predict that it will be accompanied by amazement at how different the predominant activities of the profession apparently were from what he had supposed.

The selection of "fields" to be covered must beyond doubt have been a difficult task for those who planned the enterprise, and anything like complete coverage was obviously impracticable. It seems to me, however, that the "fields" chosen involved an excessive amount of duplication, and that merging of several of these fields was readily feasible, and would have left room, without enlargement of the volume and with an increase in its value and interest, for such omissions as general welfare theory, population, regional economics, location theory, and theories of economic development. Except for reference to a limited treatment of welfare analysis in the essay on "socialist economics," none of these topics even gets notice in the detailed subject index. In these and other fields fresh and interesting work, with new concepts and new tools of analysis, has, I am sure, been done in recent years, and the non-specialists should have been told about it. There is meager reflection in the volume of the great influence of the Knightian ideas during this period on important groups of American and English economists.

The volume clearly does not succeed in providing a "periodic review of economics" if by that is meant a review of the state of our discipline as in some sense and degree a unified and coherent discipline. This would have required a different plan, different procedures, and no doubt in large part different contributors. It would probably also have been a more difficult task, more liable to complete failure. Were it successfully accomplished, however, it would, I believe, have been more valuable than the present volume to the profession and especially more valuable to those not of the profession who have curiosity as to what we try to do and why, and how what we do is related to what they do. Instead of separate essays in different fields, treated as autonomous, it would have had separate essays on general objectives, on general techniques, on the relations of theoretical analysis to policy-formulation, on the contributions economics can make to public administration, on the relations of economics to political theory, to sociology and anthropology, to ethics, and to history, and so forth. It could have dealt with the grounds, if any, on which economists start from the psychological and other preconceptions which constitute the normally unscrutinized substructure of our discipline, and with our borrowings from logic, mathematics, mechanics, statistical theory, and elsewhere, which we apply, as our tools of analysis, to problems which perhaps have peculiarities of their own requiring specially adapted tools of analysis.

In a now far distant past J. S. Mill, Cairnes, J. N. Keynes, Sidgwick, and others, made single-handed attempts, which in their time were universally regarded as valuable, to cope with this task. If it could be done at all now it would, like this volume, have to be the product of teamwork, and for the best results it would require cooperation from experts in other disciplines who were willing seriously to examine the nature of the problems economics deals with and of the tools it uses to deal with them. Without reflection on the worthwhileness of the present experiment and without prejudice to the desirability of its repetition at a proper interval of time, I suggest that a large-scale "review" of the methodological state of our discipline is a project which our Association might well take in hand as its next major experiment.

That such a survey is needed, this very volume provides abundant evidence. There is scarcely a hint in it of discussion of how economists should choose their premises, or as to what are the criteria by which an economist advises as to the goodness or badness of policy, and the mere fact of use of particular tools of analysis, whether with tested fruitfulness or not, is often quietly presented or treated as evidence that the use is justified. One contributor cites in support of resort to a particular arbitrary assumption its use by another economist; that other economist, who happens also to be a contributor, in his own contribution concedes, with a frankness sufficiently uncommon to call for special commendation, that resort to that assumption, having as its only justification its ease of use, is a fundamental weakness in his own work. One contributor presents the fact that the American economy has survived its oligopolistic features without collapsing as apparently a weighty argument against taking this problem seriously, although perhaps it is only against hysteria that he is making his point. Most of us may be busily engaged in applying the discarded or inappropriate tools of other disciplines to problems of our own manufacture, and it may take a survey of the kind I propose both to find this out and to discover better procedures and more significant problems to apply them to. A philosopher has recently commented on the social sciences that they are moving "hither and yon between meaningless facts and doubtful meanings" and has complained that social scientists borrow their methods uncritically from other sciences instead of letting their subject matter determine their methods. Even this volume, I believe, provides considerable evidence supporting this criticism. We need seriously to examine to what extent the criticism is justified and to explore the availability of remedies.

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La Valeur et Les Prix. By GAËTAN PIROU. (Paris: Recueil Sirey. 1948. Pp. 538.)

This posthumous work of Professor Pirou, written in 1945-46, and completed and edited by Jean Marchal, contains some interesting material but lacks unity of subject matter and approach.

The first chapter provides a brief historical survey of theories of value, including a discussion of the debates on marginalism. Pirou is excellent in straightforward exposition of economic doctrines, in tracing their interrelations and divergencies, and in drawing sensible conclusions as to the elements of permanent worth in the various conflicting viewpoints. The treatment is, however, too brief and too superficial to offer much for the specialist. The same comments apply to the second chapter which is concerned with the history of economic theory in the field of price determination, including monopoly and monopolistic competition. Here, as elsewhere, the book suffers —as a result of the war—from a lack of knowledge of work done since 1940 outside of France.

The third and fourth chapters, on price control and farm price support policies, and on the operation of stock and commodity exchanges, are not concerned with the history of economic ideas but with the description of economic institutions. The treatment of price control is interesting for its detailed examination of several historical instances of price control in France. (It is a pity that Professor Pirou did not have comparable information on wartime and postwar experience in the U.S. and U.K.) Most economists will heartily agree with Pirou's conclusion that when special political or social circumstances make price control necessary, the system of controlling prices ought, as far as possible, to be so organized as to work through, and to utilize, rather than to conflict with, the economic laws of supply and demand—that is to say, the most successful price control system will be buttressed by action to influence effective supply and demand, and will not be merely the legal prescription of prices other than those that would be naturally produced by the free market.

Pirou combines in himself the theoretic viewpoint of the pure economist with a good historical and sociological background. He thereby avoids theorizing in the void, but is able, when examining concrete cases, to ask interesting questions. The present volume, however, is not sufficiently simple or comprehensive for the elementary student, nor does it, on the other hand, offer a sufficiently intensive and up-to-date treatment of any one topic to contribute much to the more specialized reader.

EMILE BENOIT-SMULLYAN

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Price Theory. By SIDNEY WEINTRAUB. (New York: Pitman Pub. Corp. 1949. Pp. viii, 449. $5.50.)

It is extremely difficult for the reviewer of a textbook to avoid saying in effect "I could do it better, and here is the recipe." But such an attitude is usually both presumptuous and unfair; it is never hard to suggest specific improvements, but it may be quite difficult to create a unified whole superior to the work under review. This is particularly true when a book is as thorough, and as painstakingly contrived, as this one.

This is a textbook for advanced, rather than intermediate, students. It should not be beyond the logical powers of a reasonably bright undergraduate, but its orientation is such that it does not attempt to "explain economic phenomena"; rather, it assumes they are understood and proceeds to show, with great elaborateness, how modern price theory organizes and unifies our various "apperceptions of reality." This, I fear, will make it necessary to supplement "Price Theory" with considerable descriptive and less formal analytical material (*e.g.*, relevant T.N.E.C. monographs) for ordinary undergraduate course work. But for the beginning graduate student, and the rare undergraduate with sufficient background and analytical interest, this book will be a real boon.

The book is "technique-centered"; properly used, this is a source of great strength. A beginning graduate student, floundering in a sea of articles and monographs, might well begin his study of advanced theory by reading relevant chapters and then following the author's guideposts (carefully and extensively posted at the end of each chapter) into the literature. There is, however, a price for the space and attention lavished on technique; various substantive matters are neglected. For example, the reader will learn little about the function of profits in allocating resources; indeed, there is very little discussion of the function of a pricing system in the allocation of resources.[1] Nor will he learn that the cost of a commodity unit ought, for certain purposes, to be considered as the value of the foregone uses of productive resources utilized in its production; or about the relation of alternative and money costs. The student is, presumably, expected to know such things: he is also expected to know about marginal utility, for in the chapter on Consumer Behavior (Chap. 1) (primarily concerned with indifference maps and their properties) there are occasional knowing references to marginal utility, but the reader is not formally introduced to the concept.

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[1] In fairness to the author, it should be noted that he explicitly disclaims a desire to discuss welfare economics in the main body of the text, devoting instead a brief appendix to it with a promise (in the preface) of more to come.

The scope of the book is carefully delimited to "Price Theory"; there is, purposely, no discussion of employment theory, interest theory, or general distribution theory. But even within this circumscribed field, there is a very uneven distribution of emphasis. There is virtually no analysis of the competitive industry; and the interrelation of competitive markets is given only cursory attention. But the individual firm, as a price-setter, is examined with admirable thoroughness. Chapters 3 and 4 contain the most complete textbook discussion (of which I am aware) of the inter-relation of the firm's cost curves and its production function. The analysis in these chapters is confined to the case of pure competitors producing single products; repetition could have been avoided if the author had introduced the slight complications due to monopsony and/or multiple products at this point rather than later. The chapters on Product Variation and Spatial Interdependence (chaps. 10 and 12) could advantageously have been combined, since basically they are merely different applications of the same analytical device; the excellent discussion on Price Discrimination might also have been worked in here.

These criticisms must, however, not be allowed to obscure the very real merits of this book. Weintraub has tried to give a detailed exposition of the modern theory of the firm by the extensive use of diagrams (and avoidance of calculus) and, in great part, he has succeeded. In Part IV, "Dynamic Analyses," he ventures into the rugged country of multi-period equilibrium of the firm. The difficulties connected with uncertainty and anticipations, as usual, defeat the attempt to avoid complications; but the treatment is, in general, quite lucid and comprehensible.

The author's extensive acquaintance with the literature of modern economic theory, and his command of its techniques, is manifested throughout. Consequently, there are relatively few mistakes. But in 400 odd pages, it is inevitable that a few slips should appear: on page 39, the formula for marginal revenue is incomplete—the term $\Delta p \ \Delta X$ is omitted. This omission is permissible if, and only if, the term is sufficiently small to be neglected. On pages 80-81, the proposition that if the average product of one factor is rising (in a two factor set-up), the marginal product of the other must be negative, is not restricted (as it should be) to the case where the production function is homogeneous of the first degree. The discussion of "The Correspondence Principle" (pp. 124-25) is not quite satisfactory; the discussion about "perfect stability" is at best ambiguous and quite possibly wrong. There are a few other slips, but they are inconsequential and can be easily corrected by the instructor.

In fine, properly used, this volume will prove a valuable addition to the current stock of theory texts. It is to be hoped that the volume on other branches of economic theory the author promises in the preface will soon be forthcoming.

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Einführung in die Wirtschaftstheorie. II. Teil, *Wirtschaftspläne und Wirtschaftliches Gleichgewicht in der Verkehrswirtschaft.* By ERICH SCHNEIDER. (Tübingen: J. C. Mohr [Paul Siebeck]. 1949. Pp. vii, 334. DM 15.20.)

The first volume of Professor Schneider's triad on economic theory was reviewed in the September, 1949 issue of this *Review*. Entitled "Theory of the Circular Flow in the Economy," it dealt chiefly with aggregative problems of an *ex post* nature. The present volume, which is the second, concentrates on relativisitic economics and, aiming at the formulation of causal relationships, it emphasizes *ex ante* analysis of the economic process determined by actions of individual households and firms. Its title, accordingly, is "Economic Plans and Economic Equilibrium in the Market Economy."

The volume is divided into four chapters. The first is on "The Economic Plan of the Household" (51 pages), the second on "The Economic Plan of the Firm" (134 pages), the third on "Statics and Dynamics in Economic Theory" (7 pages), and the fourth on "Equilibrium in a Closed Economy" (128 pages). These chapter headings reveal that Schneider prefers to use the term equilibrium only for the balance between the actions of different economic units in particular markets or in the economy as a whole, and not (like Hicks and others) for the balance between different economic considerations (regarding cost and utility, or cost and revenue) within individual economic units—households and firms.

Schneider's theory of the household follows the Hicksian model for the most part. One of the few exceptions is the use of the "consumption budget," instead of income, as the variable which in conjunction with "expected prices" determines the consumption plan within a given "preference structure." Thus the decision between saving and consumption is already made when the individual begins to choose among alternative consumption expenditures (p. 4). Later, however, Schneider admits that it is "often advisable" to take income rather than the consumption budget of the household as the relevant variable (p. 21). I suppose that this peculiar form of exposition of the indifference curve technique was chosen for its geometric convenience since it eliminates saving as a third variable and makes it possible to plot given consumption budgets for two commodities on a two-dimensional indifference graph. Another deviation from Hicks occurs when Schneider correlates substitutability and complementarity with positive and negative cross elasticities, respectively (p. 39). This is inconsistent with his earlier distinction of income effects and price effects of price changes (p. 21), which serves to explain negative cross elasticities between substitutes.

Schneider's skill in exposition is outstanding. To explain income elasticity, price elasticity, and cross elasticity of demand in a single sweep (p. 26) is excellent pedagogy. Likewise, it is didactically most satisfactory to discuss the macroeconomic consumption function immediately after the microeconomic demand function and to distinguish the "general" consumption function—in which consumption is a function of all incomes and all prices—from the "special" consumption function—in which consumption depends only on incomes (as in Keynes) and possibly on the interest rate (pp. 40-48).

Schneider's exposition of the theory of the firm is superior to anything now available in English. The section on "Objectives, Types of Conduct, and Market Positions" avoids the usual confusions of profit maximization in general with short-run profit maximization, and of competition in general with the particular conduct of a firm which adjusts quantities (of output and input) to given prices. Another pedagogically very sound procedure is the immediate introduction and treatment of the multi-product firm. This avoids the stupid misconception, held even by some reputable writers, that the techniques developed for the analysis of the single-product firm are useless in the analysis of the case of two or more products.

The discussion of selling costs is aided by the important distinction between the cost of influencing demand—"active" selling costs—and the cost of making sales with given demand—"passive" selling costs (p. 89). Both can be functions of gross revenue or functions of physical sales. These differences call for different treatment in graphical analysis. (Incidentally, economists writing in English may envy their German colleagues for the clear and simple terms *Umsatz* and *Absatz,* the former meaning gross sales revenue, the latter meaning the physical sales volume.) The exposition of the laws of return begins with the "marginal product of a unit of money" (p. 90) and proceeds only later to the productivity of particular physical factors of production (p. 139). In the discussion of joint costs a helpful distinction is made between "simultaneous" production, "alternative" production, and "coupled" production, the latter with fixed or variable proportions between the products (p. 95).

The chapter on the firm is concluded with a very good section, largely in algebraic language, on the time structure of the long-range plans of the firm. Schneider's time or investment analysis does not go so far as Boulding's; but, as far as it goes, it is clearer.

In the brief chapter on Statics and Dynamics, Schneider emphasizes that the essential distinction between the two types of economic analysis is whether related variables refer to the same or to different moments or periods of time (p. 188). Thus, stationary as well as evolutionary phenomena can be dealt with by both static and dynamic analysis. Schneider warns against the widespread confusion between analytic dynamics and historical dynamics. The latter is interested in different "milieu types" and in problems of transition from one milieu type to another. The former is interested in the sequences of economic processes in a given milieu type (p. 190).

Very useful for a real understanding of the meaning of the distinctions between the alternative approaches in economic theory are the examples which Schneider presents in the fourth chapter of the volume. We are given examples in which stationary phenomena are explained by static theory (p. 203), non-stationary phenomena by comparative statics (p. 205), and stationary phenomena by dynamic theory (p. 212). The section on partial equilibria covers a wide variety of problems, including the cobweb theorem, the Wicksteedian owners' demand for their own stock, the Keynesian liquidity preference theory of interest, the Cournot—Edgeworth—Launhardt—Hotelling—Rothschild—Zeuthen analyses of duopoly, the indeterminateness of bilateral monopoly, and applications to the markets for labor and land.

The last section is devoted to "general equilibrium in a closed market-economy." Schneider does not attempt to reproduce the Walrasian system, but confines himself to elaborating its essential points. He succeeds in presenting one of the best expositions I have seen of the methodological problems of general equilibrium analysis. Here are superb explanations of the character of the equations which make up the system—definitional equations, behavior equations, technological equations, and equations expressing equilibrium conditions—of the degrees of freedom that exist in the system if the number of independent equations falls short of the number of unknown variables, of the microeconomic basis for macroeconomic magnitudes, of the methodological significance of particular "unrealistic" assumptions, and of the integration of structural and monetary analysis. The last of these promises to become the central theme of the third volume of Schneider's triad, which is to deal with the process of expansion and contraction of the whole economy.

Many textbook writers regard it as their special privilege freely to use the work of others without citation. Not Schneider, who gives due credit to the sources on which he draws. His careful index of authors enables us to give a statistical indication of the cosmopolitan character of the intellectual parentage of the book. Of 102 authors cited, only 18 are German; the other 84 are English, American, Austrian, Italian, French, Swiss, Swedish, Danish and Norwegian. As to the number of times an individual author is cited, Cournot leads the field with 16 citations, followed by Marshall (14), Keynes (12), Zeuthen (12), Pareto (11), Frisch (10), Joan Robinson (8), and Samuelson (8). It is understood that Schneider's work is not a text for freshman economics.

In comparing this book with its closest substitutes, this reviewer finds it much more comprehensive in scope than Stigler's text and didactically superior to the advanced parts of Boulding's. Of the best foreign texts, he finds it perhaps less profound than Stackelberg's and Zeuthen's, although the former at least is much narrower in scope. The singular achievements of Schneider's work are the skillful coordination of relativistic and aggregative, static and dynamic types of analysis, and the smooth way in which its literary, geometric and algebraic pieces are welded together.

FRITZ MACHLUP

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Handelspolitik. By RICHARD KERSCHAGL. (Vienna: Manz. 1947. Pp. iv, 150.)

Das Geld von Heute. By RICHARD KERSCHAGL. (Vienna: Payer & Co. 1949. Pp. 135.)

Abriss der Finanzwissenschaft. By RICHARD KERSCHAGL. (Vienna: Manz. 1950. Pp. iv, 190.)

These three books are important to the American reader mainly as symptoms of Central Europe's isolation from the main currents of economic thought.

The author is a well-known Austrian economist. He represented Austria at a number of international economic conferences, and acted as advisor to the Austrian government on monetary and commerical policies. For many years he has held the chair of economics and public finance at the Hochschule für Welthandel in Vienna, the Central European equivalent of the Harvard School of Business Administration. He must, therefore, be regarded as representing a high level of economic sophistication in Central Europe.

All three books, however, ignore most of the problems with which economics has been dealing for the last fifteen years. It would serve no good purpose to discuss the doubtful theoretical statements or to point out the factual errors which can be found in these works; it will suffice to state some of the fundamental questions which are completely omitted.

Handelspolitik, the book on Commercial Policy, has, according to the author, the purpose of "describing commerce within a nation and commercial relations among nations on a theoretical basis" (p. iii). By far the greater part of the book is concerned with the problems of international trade, including a conventional discussion of free trade and protection, balance of payments, trade agreements and customs unions, and quotas and clearing arrangements. The following problems are, however, left unmentioned: (1) the income effect of exports and imports and the foreign trade multiplier; (2) the difference between fundamental and temporary disequilibrium in the balance of payments; (3) the relation between international trade and payments restrictions, stability of exchange rates, and currency convertibility; (4) the relation between international trade and capital transactions; and (5) on the factual side, the London draft of the Charter of the International Trade Organization. The book was completed in July, 1947, the month in which the delegates of sixteen European nations (including the author's country, Austria) convened in Paris to set up the Committee of European Economic Co-operation in response to the Harvard speech of Secretary Marshall; however, no notice is taken (6) of these events or (7) of the general problems of postwar European trade and the rôle of American exports in European reconstruction and development.

Das Geld von Heute, the book on Money, aims at "investigating and, wherever necessary, reformulating the natural relations between monetary theory and monetary policy" (p. 7). It includes discussions of the function and value of money, the quantity theory, the gold problem, and inflationary and deflationary developments, as well as a valuable analysis of the changed rôle of money in a planned economy, especially in view of the emergence of double pricing and rationing, and an interesting summary of a pamphlet issued in 1860 by an annoymous Austrian, which anticipates by thirty years Gesell's plan to issue money with decreasing face value. The following important subjects are, however, completely omitted: (1) the relation between money and economic fluctuations, except for the bland statement that every monetary theory of the business cycle is out of date (p. 47) and the assertion that the alternation of inflation and deflation is merely the result of bad policy (pp. 123 and 125); (2) the effect of central banking policy, and especially of a change in the discount rate, on the level of income; (3) the problems of the Benelux union and of the sterling area, although an entire chapter is devoted to the problem of monetary unions; (4) the International Monetary Fund and its problems, apart from two fleeting references to a "world bank of Bretton Woods" (pp. 124-27), which apparently concern not the International Bank for Reconstruction and Development but the International Monetary Fund and which merely express doubts as to its influence; and (5) the present "dollar shortage" and all its implications.

Abriss der Finanzwissenschaft, the Outline of Public Finance, is intended "to present a true science of finance" whereby a "general theoretical treatment shall provide the basis for the consideration of financial and tax policies" (p. iii). It deals almost exclusively with taxation, discussing the relation between government and taxation, tax theories and principles, various types of taxes and other revenues, and the public debt, as well as the tax systems of Austria, Switzerland, the United States, the United Kingdom, France, Italy, and the Soviet Union. The following problems remain, however, unmentioned: (1) the economic significance of government expenditures; (2) the impact of government revenue on prices and income; (3) the "burden of the public debt"; (4) the possibilities of using government revenue and expenditures, or the management of the public debt and of Treasury balances, for counter-acting cyclical disturbances or a trend toward stagnation; (5) theory and practice of "functional finance," *i.e.*, fiscal policy as the regulator of effective demand. Finally, in spite of devoting a chapter to the problems of Soviet Finance, there is no discussion (6) of the communist practice of adjusting consumers' purchasing power to the supply of goods and services by changes in the rates of the turnover tax, or (7) of the "rule of the ruble," *i.e.*, the policy of using financial methods for planning and controlling the economy in general.

None of the books shows familiarity with recent economic literature. The name of Keynes appears only in the book on Money, where Keynes is mentioned four times as an advocate of the stabilization of purchasing power, together with Fisher and Bellerby (pp. 37, 45, 83, and 103). The author does not even seem to be acquainted with books and papers that had been available already before the Nazi occupation of Austria (some of them also in German translation) such as the *Treatise on Money*, the *General Theory*, and the works of Ohlin and Myrdal, nor with any other writings dealing with the problems of the "New Economics."

Since these shortcomings must unfortunately be considered as representative of today's economic thought in Central Europe, they present a problem which transcends by far the importance of the individual books under review. The rehabilitation of Europe's economy, and with it the future of world civilization, depends to a large extent upon a new generation of well-informed economists. Students learning their economics out of books like those under review cannot be expected to have any understanding of the problems with which they will be confronted. This situation must be of deep concern to the United States which cannot hope to save Europe merely by means of continuous financial aid. It may be necessary for the United States to take drastic action so as to break the intellectual barrier between Central Europe and the rest of the world which was set up first by totalitarian governments and then by the difficulties of the war and postwar situation. The author of the books under review was indeed a guest of the American authorities on a short visit to the United States in the fall of 1949. It seems, however, that such short visits are not enough and it may be necessary to invite representative teachers of economics to the United States, not for a few months but for one or two years, and to send representative American economists to Central Europe, not for a summer trip but again for one or two years. Only by means of intensive and extensive exchange of ideas can Central Europe's economic science regain the place of honor which it occupied from the times of Carl Menger to those of Joseph Schumpeter.

J. HERBERT FURTH

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Economic History; National Economies

History of the National Economy of Russia, to the 1917 Revolution. By PETER I. LYASHCHENKO. (New York: Macmillan. 1949. Pp. xiii, 880. $13.00.)

In this volume the Russian Translation Project of the American Council of Learned Societies has made available to the English-speaking public an outstanding work of a noted Russian economic historian. Earlier studies of the economy of the Russian Empire or of certain aspects of it, such as James Mavor's *Economic History of Russia,* M. I. Tugan-Baranovsky, *Geschichte der Russischen Fabrik* (a translation of *Russkaia Fabrika v Proshlom i Nastoiashchem*), and G. T. Robinson, *Rural Russia under the Old Regime,* have not given as extended a picture of the centuries of Russian economic life before the Revolution of 1917, or have not presented such a wealth of statistical material. Moreover, Lyashchenko, unlike most students of Russian affairs, has included considerable information on the economies of the Caucasian and Central Asiatic peoples that were absorbed by the Tsars in the eighteenth and nineteenth centuries.

The author is obviously a Marxist, and indeed he could not be otherwise, for this volume, published originally in 1939 by the Soviet Institute of Economics of the Academy of Sciences, was approved for use as a textbook of economics in the Soviet universities. It is not, however, merely a partisan tract, as ideological considerations seem to have been thoroughly subordinated to the vast base of statistical material drawn from the publications of the Imperial Russian government and other authoritative sources. As Lyashchenko had already won a reputation as an agricultural economist before the Revolution, and subsequently worked under the Soviet regime, he has thoroughly mastered his data.

On the whole, his account of Russian economic life, beginning with prehistoric times, is not unfamiliar. Unlike the great historian Kliuchevskii, he stresses the prevalence of agriculture among the early Slavs, allotting to the famous trade of the Kievan merchants a secondary rôle. After the collapse of Kiev, Russia slipped into feudalism, with the peasants falling into the power of the nobility through various forms of debt. As the nation expanded serfdom spread with it, and as the author points out, even an intelligent reformer like Peter the Great could not see how to eliminate it. But as the nineteenth century advanced, serfdom proved an insuperable obstacle to the development of capitalist industry and a modern agriculture in Russia. Even the nobles, once anxious to keep a labor supply for their lands, now found themselves burdened with unneeded peasants for whose labor there was no effective outlet. Hence the Emancipation of 1861, which solved some of the problems, but created new ones in their stead.

The author's discussion of the decades from 1861 to 1917 is especially valuable. His dramatic account of how the railroad revolutionized peasant life—not necessarily for the better—by bringing the peasants into the money economy and by killing the natural economy of rural life, is unequaled. The rise of Russian industry, at first financed largely by Russian capital, and later by a flood of foreign investments, was extremely rapid from 1880 on, so that, as the author convincingly demonstrates, Russia had considerable industry, more highly concentrated in large units than German or American industry. But, as has been pointed out by others, Russian manufacturing had an uncertain base, owing to the limited purchasing power of the bulk of the population. Hence, heavy industry depended heavily upon government orders, while oil and sugar were largely exported. Even Russian textiles eagerly sought markets in Asia in order to make up for the weakness of the internal market.

The author, a Soviet Marxist, naturally presents the imperial regime in a gloomy light. So impressive are his statistics, however, and so overpowering his bibliography that it is difficult to dispute his conclusions. Occasionally it is possible to see flaws. On page 757, for example, he stresses the great increase in the rate of return in the metal industry during World War I, neglecting to point out, however, that much of this apparent prosperity was caused by the currency inflation, which by the beginning of 1917 had brought the price index to 702 per cent of the prewar level. Thus, while Lyashchenko has apparently presented statistics from unimpeachable sources, his interpretation of them occasionally needs to be watched.

If the reader is prepared to make allowances for the author's ideological viewpoint, this should prove a very valuable book, filled with a wealth of information. While in the first part of the book the translator was unable to provide proper English equivalents for many of the technical terms, on the whole the translation is remarkably smooth and readable. The American Council of Learned Societies has done well to make a Russian work of such importance available to the American public.

John Shelton Curtiss

Duke University

Westward Expansion. A History of the American Frontier. By Ray Allen Billington, with the collaboration of James Blaine Hedges. (New York: Macmillan. Pp. 873. Trade ed., $8.50; college ed., $6.25.)

This latest addition to the general works on the westward movement is the most detailed and comprehensive treatment of the subject available. Beginning with the planting of the European colonies in North America, the author carries the story down to the end of the 19th century. There are 756 large pages of text, including 89 maps, followed by an excellent "Bibliographical Note," which runs to 75 double-column pages of fine print, and a 38-page index. Approximately 200 pages each are allotted to the first two sections into which the work is divided—the colonial frontier and the trans-Appalachian frontier—and more than 300 pages to the third and final section on the trans-Mississippi frontier. The volume begins with a brief chapter on "The Frontier Hypothesis" and concludes, with another on "The Frontier Heritage."

In each of the three sections, the main body of the material consists of chapters which describe the advance of the several frontiers of exploitation and settlement within specific geographic regions. The narrative describes the course and incidents of frontier advance in relation to the controlling geographic, political, and economic conditions. These descriptive chapters are supplemented by others dealing with specific problems, aspects, or phases in the history of the westward movement. As might be expected in a study of expansion, a number of chapters are devoted to the military and diplomatic aspects of westward advance. "The French Barrier, 1615-1763," "The War of 1812," "The War with Mexico, 1846-1850," and "The Indian Barrier, 1860-1887," deal with warfare arising more or less directly from territorial expansion. Three closely related chapters, the contribution of Professor Hedges to this volume, deal with the occupation of Texas, California and Oregon, respectively. Two other chapters, "The West in the American Revolution" and "The West and Slavery" reflect the tendency of frontier historians to identify westward expansion prominently with the Revolution and the Civil War.

Still another group of four chapters is devoted specifically to the rise and development of sectionalism in its economic and political manifestations during the period 1815-1850. Other chapters, including some of the best in the book, deal with what might be called the "occupational" frontiers: "The Traders' Frontier, 1776-1840"; "The Miners' Frontier, 1858-1875"; "The Cattlemen's Frontier, 1865-1887"; and "The Farmers' Frontier, 1870-1890." Transportation as a key factor in expansion is emphasized throughout the study. There are numerous excellent maps of transportation routes and one chapter, "The Transportation Frontier, 1858-1884," is devoted entirely to this factor. The important rôle of geography is reflected in the organizational structure of the volume and receives attention in all the chapters dealing with frontier advance in specific regions. The section on the trans-Mississippi frontier opens with a chapter on the geography of the western half of the continent. The concluding chapters—"The Agrarian Revolt" and "The Frontier Heritage"—round off the volume with the customary review of the impact of the frontier upon American institutions and culture and the significance of the "end" of the westward movement.

What interest has this volume for economists? Obviously, its subject, the occupation and pioneering development of the basic natural resources of the continent, has great interest for any one concerned with the growth of the American economy in its pre-industrial, agricultural phase. It is possible to follow here, in general terms at least, the evolution of patterns of resource use, as affected by pioneer folkways, land policy and the techniques of exploitation devised under frontier conditions. The excellent chapters on the "occupational" frontiers, especially those dealing with trading and mining and the extended attention given throughout the study to the rôle of land speculation and to transportation will be helpful to all students of American economic growth. There is some question, however, whether the advantages of observing the pioneering phase of our economic development from a viewpoint which relates all things to physical expansion are sufficient to compensate for the disadvantages resulting from the necessity of ignoring or slighting the many other phases of economic evolution which cannot readily be associated with the frontier advance. From the viewpoint of subject matter, this volume provides a useful supplement to discussion of the same topics presented in the context of American economic development as a whole in such texts as Wright and Kirkland.

What does this work offer the economist in the way of insight into and interpretation of the processes of our economic growth? On the whole, the treatment here is descriptive rather than interpretative. As is evident from the contents as reviewed above, *Westward Expansion* is developed within the conceptual framework of the frontier hypothesis of Frederick Jackson Turner, briefly reviewed in Chapter 1. Indeed, as is stated in the preface, the plan of the volume is drawn, approximately, from the outline of Turner's course on the history of the frontier. Within this scheme, Professor Billington gives his readers a carefully developed but conventional treatment of a familiar theme, a treatment which, while making many minor adjustments in accord with revisionist criticisms of the hypothesis, still leaves the main structure of the traditional interpretation intact. However desirable this handling of the subject may be in terms of the textbook market, in relation to the broader needs of workers in this field, it can only be regarded as unfortunate. It simply serves to perpetuate a mode of analysis which has lost much of the vitality which it possessed in the hands of the original formulator. As the numerous critical essays devoted to a revision of the frontier hypothesis during the past ten or fifteen years have demonstrated, what is badly needed is not further plodding along the now deeply worn paths which Turner first marked out. The urgent need is for re-examination, for re-evaluation, and, it might be added, for a thorough recasting of the traditional treatment of the westward movement.

Consider, for example, the subject of sectionalism which Professor Billington has covered in a series of excellent chapters. As a socio-economic phenomenon of the 19th century, sectionalism is identified less with the occupation and settlement of the continent than with the process of economic specialization which followed the pioneering phase of agricultural settlement. Tradition prescribes, however, that the concepts of frontier and sectionalism, united chiefly by the personality of the historian who conceived them, shall be handled together, and so they are in this work. Again, consider the "unique" character of the frontier phase of American development, much stressed, and properly so in the exposition of a novel interpretation by Turner, who devoted his lifetime to the elaboration of this "American" phenomenon. Bewitched by the doctrine of uniqueness, the followers of Turner almost wholly ignored the rich possibilities of the comparative study of frontiers. In recent years, however, other historians have called attention to the existence in other countries, in both the Old World and the New, of frontier processes comparable in many essential respects to our own. Here, too, is a splendid but neglected opportunity to place the study of the American frontier in a perspective that would provide balance and a sense of proportion in a field where they are much needed. A more general awareness of the community of experience which we share with many other peoples in the world would, perhaps, serve to soften the conviction of uniqueness of American ways which is one of the supports of present day conceptions of our manifest destiny. Conceivably, too, we might gain new understanding of our own national growth.

Still another opportunity for placing the westward movement in clearer historical and economic perspective neglected in this study is offered by the many studies of other types of internal migration which have been made by economists and sociologists during the past twenty years. The internal migrations associated with the growth of cities, with the rise of a complex industrial economy and the attendant seasonal and secular fluctuations in employment, and with regional shifts of population have much in common with the westward movement. They can profitably be studied along with the westward movement, as Carter Goodrich and his associates have demonstrated so ably in their classic depression study, *Migration and Economic Opportunity*.

The reviewer may seem unfairly to have selected Professor Billington as a whipping boy to expiate the (alleged) sins of the entire school of frontier historians. In justice to the author, it must therefore be said that within the framework of the westward movement as conventionally defined and interpreted, this volume, in the reviewer's opinion, is in many respects the best of its class. The extensive annotated bibliography in itself makes *Westward Expansion* an indispensable reference work for students of American economic and social development.

LOUIS C. HUNTER

Industrial College of the Armed Forces

Government and the American Economy—1870-Present. By THOMAS G. MANNING and DAVID M. POTTER. (New York: Henry Holt. 1950. Pp. xvi, 464. $3.25.)

This volume gives source materials for the explication of particular developments in the period without sacrificing historical continuity. The connection is accomplished by excellent introductory sections and linkages by the editors. Irrelevant and confusing material—a drawback of many source books—has been avoided; on the contrary, imagination has been shown in finding and presenting pertinent, illuminating documents and interpretations.

The editors prefer this kind of class aid to the ordinary textbook, and built up their volume (as well as another earlier one) to answer their demand for authentic reports from many quarters. Many will agree with their desire and will find their offering most satisfying. The textbook, on the other hand, has its claims also. Where the whole story has been viewed by one observer, the interpretation is apt to be more unified, and emphasis better distributed, than where numerous persons—specialists in particular episodes or participants in trials or strikes or debates—are giving their testimony. In the latter case, each one thinks his account is most important. In this volume, e.g., the description of Progressivism (p. 228), the unconscious exaggeration leaves the student unprepared for the advances in social thought and action thirty years later.

We shall never know what history was. Certainly we are obliged to study the utterances and actions of those who took part at each stage, but then comes the problem of fitting pieces together into a pattern. The patterns will be as various as the scholars who fashion them. But better *some* design than bits and pieces, no matter how genuine. All notes exist in a silent harp; the magic is in the fingers that pluck the strings.

The present reviewer would make a compromise and use a handy volume of source selections—this one is first-rate—along with a secondary or textbook viewing the period as a whole. In such an arrangement the introductory sections and paragraphs in the work of Messrs. Manning and Potter do not come amiss, but serve to give another slant that will be welcome.

BROADUS MITCHELL

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Puerto Rico's Economic Future. By HARVEY S. PERLOFF. (Chicago: University of Chicago Press. 1950. Pp. xv, 417. $4.75.)

This, the latest of a long series of studies dealing with Puerto Rico and its problems, is a notable contribution to the already rich bibliography concerning the island. Superficial review would indicate that no state or commonwealth, no other possession or territory under the American flag has ever been studied either as extensively or intensively as has this Caribbean possession. The work done is more noteworthy for its quality than its extensiveness.

Victor Clark, Gayer, Homan, James, Lydia Roberts, Senior, Tugwell and Caroline Ware are among the economists and sociologists who have examined the problems. The U.S. Tariff Commission, Department of Labor, Department of Interior and other federal agencies have also made detailed studies of the island, its people, trade, resources and its problems. The insular government and the Puertoriqueños have carefully scrutinized and described various aspects of the situation.

Puerto Rico's Economic Future has not only brought all of these previous efforts into a comprehensive tome but also has gone far beyond any prior efforts in attempting to present potential solutions to the basic problem. Guided by the philosophy "crucial social problems sometimes get distorted in popular discussions through special-interest treatment, through prejudice, and even through the weariness which comes from constant contact with relatively unpleasant facts" (p. 189), Perloff has done an excellent job of avoiding these pitfalls. His treatment is characterized throughout by intellectual vigor, a dispassionate presentation of all of the facts and objective analysis. If those who read and make future use of this analysis will be equally objective, we may hope for a future balance in the presentation of Puerto Rican problems which has not always characterized these discussions in the past.

As in most of the earlier studies, Perloff stresses the population factor, but fortunately for the reader recognizes it as only one part of the problem. Perhaps his most poignant paragraph is

> The problems involved in carrying out a program of development in the island are extremely difficult. It seems no exaggeration to state that even if the population were stabilized and the specter of rapid continual growth removed, Puerto Rico could not hope to achieve anything resembling an adequate level of living for all its people unless it became an area of intensive and balanced agriculture, where farming was a scientific business as well as a way of life, and unless it processed and expertly marketed a wide variety of commodities for export and domestic use. Whether or not this can ever be achieved cannot be known until an effort commensurate with the immensity of the problem is fully carried through (p. 240).

Recognizing that "increased production and economic progress can only be achieved with a labor force which is skilled, healthy and desirous of self-improvement and community advancement" (p. 245), Perloff describes "accustomed living standards, desire for self-improvement, job security and family security, sense of family and social responsibility, competitive drive, pride in workmanship, value placed on leisure" as the major forces (p. 248). He suggests that these do not now operate in Puerto Rico in a manner which would tend to increase the workers' output. So there is a tremendous problem in reorienting the social values of the island's people.

To facilitate an understanding of what his facts, principles and suggestions would mean in a program of action, Perloff has set up "Hypothetical Models" for 1960.[1] Some measure of the magnitude of the steps necessary to attain these goals can be had in the investment and productivity changes involved.

The program will require capital outlays of about $85,000,000 per year (in 1948 prices) over the next twenty years. This compares with maximum capital expenditures in the most prosperous years of about $40,000,000 (in 1948 prices). Obviously this investment deficit will require a heroic effort and probably can be met only by public borrowing and investment. Output per worker must be increased by 30 per cent in the next twenty years. It should be noted that at the projected 1960 level it will be about one-half as high as the productivity of the average continental U. S. worker for 1940.

[1] Table 85—Crop Production in Puerto Rico in 1945 and Hypothetical Production and Land Use in 1960 (p. 325).

Table 87—Hypothetical Model: The Food Supply of Puerto Rico, per Capita Consumption, and Percentage Locally Produced and Imported, 1960 (pp. 328-29).

Table 91—Hypothetical Model: Distribution Among Industry Groups of Puerto Rican Labor Force, 1960, and Percentage Distribution of Employed Persons in Puerto Rico, April, 1948, and in Selected States 1940 (pp. 351-52).

In this connection, I wonder if Perloff meant to say "Since Puerto Rican labor costs are generally below even those of the southeastern United States" (p. 339). On page 340, he says "The existence of lower hourly wages is not sufficient to attract such industries if, at the same time, labor productivity is relatively low." Productivity multiplied by labor prices equals labor cost and in Puerto Rico low wages have not meant low labor cost because of the productivity factor.

Puerto Rico now enjoys a higher standard of living than that found in the rest of the Caribbean area, in most Central and South American and in some European countries. For the person not familiar with the living standards in these areas, it will come as a shock that the $271 per capita achieved in Puerto Rico in 1946 (continental United States, $1272) represented an all-time high. Careful study of Perloff's data indicates how temporary even this high point may be since it relies heavily upon expenditures by both federal and insular governments and these are income sources which may not continue to be available at such high levels.

It would be very helpful if the *Puerto Rico Planning, Urbanizing and Zoning Board* would indicate the extent to which Perloff's program can and should be translated into a plan of action for the insular government. With this as a goal they could then provide each year in their annual report a measure of progress made and a critical analysis of the successful and less than successful measures and reasons for the present status of the program.

This would not only help measure progress towards the goals but also would indicate the possibility of achieving the described aims. Such a case history would provide the basis for determining the extent to which education can be substituted for evolution. As Perloff puts it, "Puerto Rico cannot afford to go through a demographic-industrial evolution spanning a time period comparable to that involved in the development of the countries in question (Switzerland, Belgium, Sweden, Netherlands, and Austria), *i.e.*, a transition period of two to three centuries" (p. 194). To the extent that the process of adjustment can be speeded up, it will provide direct benefits for Puerto Rico and a basis for methods for use in other countries.

There has been much hope for resolving the Puerto Rican problem since the advent of Muñoz Marín in 1940. His personal idealism, integrity, and broad capabilities are rarely found anywhere. To his natural talents have been added the advantageous accident of the New Deal efforts to do something for the island and the heroic and forward-looking work of Tugwell during his tenure as governor.

"Operation Boot Strap" which is the term frequently applied to the Muñoz Marín program is an idealistic effort conceived and executed with an appropriate measure of realism. It is worth the careful study of anyone interested in the world-wide potentialities of capitalistic democracy. It is immediately important to those who will support and administer Mr. Truman's Point Four Program. Perloff's book, therefore, has a dual value at this time: first, as an extraordinarily good analysis of Puerto Rico, its problems and its future; and second, as a case study to be used by those who will formulate and execute economic programs in the "to-be-developed" areas of the world.

The twenty-one chapters are organized into four major groups: Part I covers the historical backgrounds; basic economic factors and trends make up Part II; the population problem is singled out for special treatment in Part III; and Part IV presents economic planning applied in the form of major programs. Over one hundred tables and twenty charts are used to summarize and analyze the principal economic and social factors. The book is an excellent reference to source material on Puerto Rico and for methods of analysis to be applied to other underdeveloped areas.

DAVID NOVICK

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Economic Survey of Latin America, 1948. Prepared by the Secretariat of the U.N. Economic Commission for Latin America. (New York: Columbia University Press. 1949. Pp. xx, 279. $2.00.)

This excellent volume reflects the wealth of resources, in terms of both factual material and personnel, that is at the disposal of the United Nations' Economic Commission for Latin America. Specialists in the area and general students of international economics will welcome the study, the first of its kind undertaken by the Commission, and they will look forward to similar high-quality *Surveys* in the years to come.

The volume consists of two parts, the first of which deals with trends in production and the second with facts and figures in the fields of population, transportation, foreign trade, the balance of payments, and inflation. In production, the major conclusions concern the growth of industrial output, which increased 50 per cent from 1937 to 1947 in those countries already in a relatively advanced stage of development and 30 per cent in the other Latin American countries. With few exceptions, among which we find Argentina, the increase in industrial output was achieved without sacrificing output in primary production. The 1948 *Survey* is not the first publication to point out this fact—we already knew of the spread of technical progress and the relative abundance of resources in fields of primary production, and especially in agriculture. What the *Survey* does is to enable us to pin down a number of points previously dealt with inconclusively by arm-chair economists. Despite the growth of industrial production, however, agriculture still dominates the Latin American economy, accounting for 60 per cent of total employment and a little over half of total output.

The first chapter, on manufacturing, is perhaps the most interesting. It would be valuable for its data alone—on production by industries and by countries. It is doubly useful for dealing with the relation between industrialization and foreign trade. If living standards are to be raised appreciably, the supply of manufactures must be greatly increased. Some increase may be realized through larger imports of such goods; but the Commission is not optimistic about the results that are likely to be achieved by this means, mainly because it holds that payment via exports is limited by the relatively small margin of primary production available for export. The Commission argues, for example, that in 1939 it would have required a third of total world imports (not just imports of manufactures) to give Argentina, Brazil, Chile, and Mexico a per capita supply of manufactures equal to just half of Canada's supply in that year. This is supposed to show that "a completely unrealistic volume of foreign trade" is required to raise Latin American imports of manufactures to desirable levels. Is not this dangerously close to crude argument by analogy? The issue is fundamental. Here it can only be pointed out that Canada did not achieve her enviable position overnight, and that Canada and Latin America are not at all comparable on the crucial matter of the ratio of resources to population. Nevertheless, we may accept the Commission's conclusion that Latin America will have to rely principally on industrialization. In this connection, it is refreshing to note that the Commission emphasizes the point that if "balanced economic development" is to be achieved, there will have to be improvements in technology in agriculture, transportation, power production, and in commodity distribution. Incidentally, the whole picture reveals strikingly the potentialities of an imaginative Point Four program for the area.

There is a major gap in the study in that it does not include a systematic analysis of public finance. This should be an integral part of the treatment of Latin American balance-of-payments and inflation problems. The volume is also without an index. Valuable reference sources such as this should be indexed.

Virgil Salera

San Jose College

Wealth and Welfare—The Backgrounds of American Economics. By Norman Ware. (New York: William Sloane Associates. 1949. Pp. 231. $2.50; text, $1.90.)

This breezy little volume will not be understood unless its historical ("backgrounds") feature is recognized as support for a conception of the "American system" expressed toward the end. As the subtitle indicates, economics (the "science" or body of knowledge and principles) rather than economy itself (the socially organized process) is historically treated. There is some economic history in the second or narrower sense. However, the treatment is sparse and on a discouraging number of points erroneous. Even the better chapters on doctrine (Chapter 9 on the Physiocrats and scattered discussion of Hamiltonian "Mercantilism," Jeffersonian "Physiocracy" and eventual compromises with populism and socialism in America) could be called opinionated. Obviously four pages on Communism and two on British Socialism (fairly critical and roughly neutral, respectively) cannot make much of a contribution.

I think that undergraduates who read this book, particularly elementary students, might be confused and misled. The period 800 to 1400 was not "the early middle ages" (Chap. 2). Vassals were not peasants (p. 16 and reiterated). Manorial strips were not assigned annually (p. 19). It is not true that "there was little poverty," that "the people . . . ate and drank much" (p. 21), that "the medieval French system held on with minor changes to 1789" (p. 73) or that "the guild was merely the manor adapted to industry and commerce" (p. 94). Walpole was chief minister for twenty-one years, not fifty (p. 59). Charles I is evidently confused with James II (p. 99). There are comical slips such as "Hero of Alexander" (misdated as well as misspelled) and *Leopold* for *Leopard* as the ship which fired on the *Chesapeake.* Presumably the author thinks that the Statute of Artificers (or Apprentices) represents two different laws (pp. 97, 98). One gets the feeling that the text was not checked—not even with a dictionary and a one-volume encyclopaedia.

As one side of a possible debate, "the American system of regulated and supported enterprise," and "a joint farmer, enterpriser, labor alliance" (p. 205 and much elsewhere in similar vein) have a suggestiveness. However, misgivings in more than detail will not down. It would not be generally accepted that multiple origins rather than frontiers with ample good land explain the peculiarities of the United States (p. 145, but apparently contradicted on p. 163). I have thinly sampled here what I consider to be the gross errors and vague to meaningless statements in the book. Asking the inevitable questions for what and for whom it is suited, I have found no satisfactory answers.

M. M. Knight

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Economic Systems; Planning and Reform; Cooperation

The Economic Role of the State. By William A. Orton. (Chicago: University of Chicago Press. 1950. Pp. x, 192. $3.00.)

In these wise and witty lectures (a revision of addresses given at the University of Chicago in October, 1948) the author of *The Liberal Tradition,* argues that the functions of the State are essentially moral, not economic, and that they can only be discovered and respected by "a frequent recurrence to the fundamental principles referred to in the Virginia Declaration of Rights (1776):

> No free government, or the blessing of liberty, can be preserved to any people, but by a firm adherence to justice, moderation, temperance, frugality and virtue and by a frequent recurrence to fundamental principles.

This is Orton's text. Old-fashioned liberals will read this slim volume with pleasure. It is to be hoped that eager reformers, who would use the coercive power of the State to bring Utopia here and now, will not neglect it.

Orton argues that the unique characteristic of the modern State is the power of coercion. This power is legitimate only in so far as it respects the individual and the voluntary groups that make up society. The Good Society is one that favors the development of free self-governing personalities. This development is good because of "a latent predisposition in human nature to recognize certain broad standards of right and wrong as of universal validity." (Orton pleads here for a return to the philosophy of the Common Law.) The State is the executive agent of an essentially voluntaristic community which has grown into a tacit consensus. Coercion can not produce this consensus. On the contrary, it frustrates the natural course of development. Freedom is of the essence of the Good Society. "It is simply meaningless to extol political freedom and disparage economic freedom." The threat to our liberties comes from the side of impatient utopian planners who would use the coercive powers of the State to accomplish ends which they regard as good, and who are blind to the dangers of tyranny because they always see themselves as the wise and beneficent controllers of Power.

After this recurrence to fundamental principles, one would expect a declaration of faith in the justice of the untrammeled market such as is to be found in Mises' *Human Action*. It will come as a surprise, therefore, to many readers to discover that Orton is prepared to see the modern state guarantee (though not necessarily provide) a minimum subsistence and impose upon business the responsibility for paying a fair wage. "The policy of the guaranteed minimum," he writes, "is a sound political principle because it expresses an almost universal and spontaneous sense of solidarity; and that makes it a moral principle rather than an economic one" (p. 144). He recognizes that coercion is involved and that his sound principle will be vitiated if pressure groups succeed in imposing too high a standard.

The reviewer is highly sceptical of some of Professor Orton's practical conclusions—such as those just cited. Can democratic processes operating through Washington be content with the modest minimum that Orton has in mind? Would Committees appointed from Washington read into the word "fair" the meaning he reads into it? (He objects to the cents per hour definition of our Fair Labor Standards Act.) If the reviewer could debate the matter with Professor Orton, he suspects that a consensus might emerge along these lines: The State can be trusted to carry out its moral obligations provided (1) that the unit of government involved is close to the people and (2) that it does not possess the unlimited power to tax and borrow and to throw up protective barriers around the society it is attempting to help. But will national governments, with their income taxes, their access (thinly disguised) to the printing press, their control of the movement of men and of goods across national frontiers curb the appetites of the masses? Can they do anything else but go through the five stages on the road to tyranny which Orton points out so effectively in his chapter entitled "From Humanism to Paternalism"?

Orton deplores political centralization; he extols the virtues of local self-government. The reviewer wishes that he had been more explicit regarding the location of political authority. Perhaps a more frequent "recurrence to fundamental principles" would salvage for us before it is too late the great political principles of federalism. Welfare measures cannot get out of hand as long as they are locally financed and locally administered. Turn them over to national governments, however, and the national anarchy which Orton deplores may very well follow.

JOHN V. VAN SICKLE

Wabash College

Socialiser dans la Liberté: La Vocation de l'Europe. By GEORGES LASSERRE. (Paris: Albin Michel. 1949. Pp. 315.)

Professor Lasserre's work may be interpreted as a neo-utopian-socialist rebuttal to Hayek's *Road to Serfdom*. He asserts and sustains a distinction between the control of the enterprise and of the market: the enterprise may be either capitalistic or socialistic; the market may be automatic or regulated. The market constantly evolved through successive stages: "liberal capitalism," "monopolistic capitalism," "managed economy" (New Deal), and finally (in some countries) "planned economy." Although planned economy took the form of "planned capitalism" in Nazi Germany, the inevitable trend is toward "planned socialism." The main question today is whether planned socialism will be democratic or authoritarian (as in the U.S.S.R.). The ineluctable tendency toward planning was temporarily interrupted by postwar selfish neo-liberalism, which, seeking to "free" the economy, has succeeded only in inviting depression, revolution, and totalitarian dictatorship; in short, traveling the road to serfdom.

Democratic socialism can be achieved, says Lasserre, only by a conscious reform to effect a reintegration of our heritage of the Greco-Roman and Judeo-Christian traditions. The Russian values of fraternity, solidarity, community must be synthesized with the Western values of personal liberty and democracy. This reconciliation is "la vocation de l'Europe du XX^e siècle."

Lasserre envisages a democratic, humanistic, integrated society based on cooperativism. Within the enterprise, emancipation of workers can be achieved by workers' corporations which contract with cooperatives to produce a given quantity and quality of output. This "industrial democracy" is complemented by the "economic democracy" of consumer cooperatives which supply the capital and, in federations, do the over-all planning. The state merely plays the rôle of arbiter in case of disputes.

In trying to educate by popularizing Lasserre often vulgarizes and violates the canons of academic usage: *e.g.*, his simplistic Marx-esque account of capitalism; his citing of books by a bare reference to author and title; his frequent quoting of index numbers without stating source or even base year; etc. Moreover, in the judgment of the reviewer, his analysis is superficial and his recommendations are utopian. Utopianism may be dangerously misleading, as in confusing the borrowing of constructive Soviet innovations with the lulling hope of reform within Russia. Nevertheless, Lasserre has the rare virtues of catholicity, moral concern, and a constant orientation around the fundamental social problem of our time—how to channelize the current great transformation toward the good society. It is unfortunate that this sound orientation did not lead to sound answers.

ALLEN M. SIEVERS

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National Income and Social Accounting

Comparative Productivity in British and American Industry. By L. ROSTAS. National Institute of Economic and Social Research Occas. Paper No. XIII. (New York: Cambridge Univ. Press. 1949. Pp. xxiii, 263. $4.00.)

The comparison of productivity between countries has become of considerable significance in international affairs since the end of World War II. Dr. Rostas' contribution in the area of productivity is not in up-to-date figures on how much more productive the United States is than Great Britain, but in the development of techniques for the computation and analysis of the relative productivity of two or more countries. This is an exploratory work in an area of economics where little basic research has been done, and Dr. Rostas' presentation of all his data and techniques opens the door to further research in this field. He emphasizes again and again the possible weaknesses in his procedures, and he makes the necessary reservations in his generalizations. The study is addressed, both in style and content, to the technical reader, and will have little appeal to the general public.

The main subject of the book is the comparison of productivity of labor as measured by physical output per worker or per man-hour in British and American manufacturing industry; and the importance of such comparisons, to Dr. Rostas, is to throw light on relative real incomes, and thus on relative standards of living in the different countries. The text of the study (plus 24 supporting tables) is covered in 93 pages. The appendices cover over 150 pages, and include the raw data and the procedures for the international productivity comparisons in 31 manufacturing industries and six nonmanufacturing industries.

The general procedure used by Dr. Rostas is to compare the physical output per employee in the several branches of manufacturing in order to build up a picture of how output per worker compares in manufacturing industry as a whole. He then proceeds, "in a rougher way," to compare physical output per worker in several branches of the national economy in order to build up a picture of how output per worker compares in the national economy as a whole of the different countries. He necessarily confines his comparisons to industries which have a rather simple product structure and to industries which produce approximately homogeneous products. He is aware of the limitations of the concept, "output per worker," and attempts to take into account, therefore, the use of raw material and fuel per unit of output, and the use of labor needed to maintain capital.

Notwithstanding the many difficulties involved, the author comes through with a productivity comparison of the United States and Great Britain. According to Dr. Rostas' statistics, average productivity for 31 manufacturing industries in the prewar period of 1935-39 was at least twice (about 2.2 times) as high in the United States as in Britain. If allowance is made for the shorter working week in the United States, output per man-hour was perhaps 2.8 times as high in the United States as in Britain. The 31 industries included in this comparison together accounted for about half of the value of net output in Britain and two-fifths of the value of net output in United States manufacturing industry.

A comparison of real income in different countries is one of the principal purposes of the study, and it is attempted by comparing the productivity of labor in the different branches of the national economy. Before proceeding from productivity comparisons to real income comparisons, a number of other factors are considered. The most important factor considered is the distribution of the working population between different industries. Another factor which enters into real income comparisons between countries is differences in the proportion of working population to total population and in the number of hours worked by the working population. A number of other factors are also taken into account. On the basis of these factors affecting physical output per worker, real income per capita in the United States is calculated to have been only 18 per cent greater than in Great Britain during the period 1935-39.

For the technician, this relatively short study has many insights to offer in the area of relative productivity; but a complete understanding of techniques involves considerable sifting of raw data and statistics to see where the author is leading. For the nontechnical reader, the book offers very little. Little attempt is made by the author to explain some of his more complex ideas; and even some relatively simple concepts are complicated by the inconsistent use of terms. The phrase "per head," for example, is sometimes used to mean "per worker" and sometimes used to mean "per capita of total population."

MORRIS A. HOROWITZ

University of Illinois

Business Fluctuations; Prices

The Theory of Fluctuations in Contemporary Economic Thought. By SIDNEY D. MERLIN. (New York: Columbia Univ. Press. 1949. Pp. 168. $2.75.)

Dr. Merlin's study is less comprehensive than its title would suggest. He has concentrated his attention on Hicksian Dynamics, Keynesian Theory, Swedish Sequence Analysis, and Econometrics in an attempt to show that systems based on modified equilibrium concepts leave fluctuations in employment and prices unexplained. The theories, he finds, shed light on various factors affecting cyclical movements, but fail to yield a satisfactory explanation of cycles or of cyclical changes in employment. Not only are these theories insufficiently concerned with cycles as such, but they attempt to achieve determinacy without accounting for the changing expectations on which they lay such stress. Econometric analysis tends to keep important causal forces impounded in random factors or in the data.

The examination of these theoretical schemes occupies three-fourths of the book, and the author does his best work here. The level of the treatment is appropriate to its object, and the theories are adequately summarized and effectively discussed. If Dr. Merlin has not read widely, he has read thoughtfully and has pondered what he has read. He has mastered details without getting lost in them, and he has succeeded in placing some involved matters in clear perspective. Readers who wish to do likewise will find these pages worth their attention. They may also wish to consult Dr. Merlin's essay in the *Quarterly Journal of Economics* for February, 1945, a paper which the author himself, with a rare modesty, has neglected to mention.

Dr. Merlin concludes that the cycle and its causation should be regarded as "an integral part of the economic system and its long-run development" (p. 90), and that "a theory of economic development may be a prerequisite to a theory of cyclical (or other) fluctuations in investment in a system of private enterprise" (p. 119). In the last fourth of his book, he suggests that unstable conditions confronting new investment, labor-saving innovations, and the growth of monopolistic practices were the three principal long-run causes of unemployment after World War I, and that the short-run irregularity of investment activity should be viewed against the background of these interacting elements. The short-run upper turning point may come, he thinks, "when new investment in productive capacity has increased to a point where the proportion of new to old equipment is relatively high, overhead costs have risen substantially, and the rate of increase of output has outstripped that of consumer purchasing power concurrent with the growth of income concentration" (pp. 138-39).

Standards of presentation are low nowadays. The excessive use and misuse of parentheses, the abuse of Latin abbreviations in foot-notes, and errors in citations are to be found in the work of eminent economists. Dr. Merlin is thus in good company, and I shall confine myself to a few comments. Parentheses are employed some 200 times in 150 pages. *Ibid.* and *op. cit.* keep the reader thumbing back and forth to see what is at stake. The *op. cit.*, p. 151, n. 5, apparently refers to a work last cited on page 87, n. 49, and there inaccurately. The footnotes contain a dozen errors sufficiently glaring to attract the reader's notice; the bibliography half as many.

RICHARD V. CLEMENCE

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International Commodity Stockpiling as an Economic Stabilizer. By M. K. BENNETT and Associates. (Stanford: Stanford Univ. Press. 1949. Pp. viii, 205. $3.00.)

In this book the staff of the Food Research Institute examines the Commodity Reserve Proposal of Mr. Benjamin Graham and suggests an alternative plan. There are two principal modifications of the CRP, which is treated primarily as a contracyclical measure. In the first place, in his analysis of the monetary and financial aspects of the CRP, Professor E. S. Shaw rejects its kernel idea—the monetization of composite commodity units. He points out that there is not a clear relation between the phases of the cycle and variations in monetary reserves. Thus, the expansion of reserves through the purchase of units by a CRP agency may not prove an effective way of inducing an upturn. Moreover, the CRP would not necessarily promote the conditions necessary for achieving exchange-rate stability and would, as a symmetallic device, prove inherently unstable. He also criticizes an error rampant in Mr. Graham's books that the acceptability of a currency depends on its reserve backing, but in treating *international acceptability* he does not prove his case since he argues by national analogy (p. 33). The commodity (or gold) backing of a currency transferred internationally is indeed important in determining its general acceptability.[1] As an alternative to the monetization of commodities, he proposes that an international agency be set up with an equity contributed by member countries and that the agency float gilt-edged securities in order to raise funds for the purchase of units during a depression. He indicates the difficulties such a procedure would involve, including problems arising from the balance-of-payments position of various countries and the difficulties of transferring funds; but he is not pessimistic about the possibility of successful operation.

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[1] *Cf.* C. D. Calsoyas, "Commodity Currency and Commodity Storage," *Am. Econ. Rev.*, Vol. XXXVIII, No. 3 (June, 1948), pp. 345-48.

The advocates of a buffer stock with composite units advance as one of its chief merits the fact that the prices of individual commodities in the unit will be free to fluctuate in accordance with peculiar supply and demand conditions and that the attempts of raw-materials producers to set high floors on the prices of commodities will be foiled. Three comments are suggested. First, the proponents *assume* that producers will enter the circle of the damned and remain there without protest. Second, in attempting to remove an artificial instability introduced by CRP operations, they nullify that assumption in the CRP operating rules. Third, having introduced the possibility of producer pressure, they appear to believe that black and white articles of agreement are proof against producer pressures in some way immorally excessive. The artificial instability of the CRP is a consequence of the fact that the commodities in the unit are bought and sold in fixed relative amounts. The Graham CRP provides that the purchase and sale of units would begin when the price index deviated ±5 from an unspecified price level. Operations in units would affect individual commodities in varying degrees, depending on elasticities of supply and demand, the physical amounts of the commodities in the unit, and the rate and direction in which individual prices had moved. Owing to the narrow range of possible variation of the unit price, conditions affecting only one or two crops could initiate operations and lead to inverse changes in the prices of other commodities in the unit, even though the prices of the latter were not in any way closely related to the former; *e.g.*, the prices of wheat and rubber.

The second important modification of the CRP suggested by the authors would cause artificial fluctuations of greater magnitude, since the alternative plan allows a price fall of 20 to 30 per cent before units are bought. For specific commodities, moreover, this fairly large range can become even larger before any action is taken, when, *e.g.*, only a few prices in the index are under pressure. The requirement that the price fall take place *within* an eighteen-month period allows a corrosive price deterioration of great magnitude. The range of variation tends to free the commodity markets from the artificial effects of agency operations but virtually ensures large price fluctuations. Although "not much can be said in support of the idea that there is or ought to be a persisting relationship of the price of one commodity to any other" (p. 22), a great deal can be said against artificially inducing the collapse of one market or enhancing the profitability of another through composite-unit operations. In actual fact, however, the authors introduce the same problems involved in single-commodity buffer stocks when they state that as a "guard against the appearance of excessive or irrational price differentials between the several commodities in the unit" (p. 133), the agency could add or subtract commodities and alter the quantities of commodities in the unit, This means that the agency would be responsible for deciding on the appropriateness of the price movements of each commodity and indeed on the retention of stocks of those commodities under pressure. The authors show an almost complete lack of concern over the erratic price fluctuations which individual commodities may undergo owing to supply conditions and curiously discover a virtue in the fact that the perplexed "producers would . . . have hardly more of a basis for reckoning the probable price of any single commodity than they would have in the absence of a CRS in operation" and that "decisions to expand output in particular directions, as producers inevitably must decide, would be scarcely easier to make than in the absence of a CRS" (p. 138).

As the authors recognize, the modified CRP is neither a necessary nor a sufficient measure for damping the amplitude of cyclical fluctuations. As soon as the bold monetization and price-stability features of the Graham CRP are severely modified, the spell is broken and composite commodity stabilization loses its simple charm. It is almost inconceivable that the industrialized countries will fail to make use of devices now almost classical (and which the authors list) in order to prevent the recurrence of a severe depression. Fluctuations in the prices of raw materials owing to cyclical factors could be confined to a narrow range by action taken in the depression-breeding centers. An international agency should be established to deal in single commodities in order to eliminate fluctuations resulting from fortuitous supply conditions. Commodity buffer stocks, regulated in accordance with the peculiar conditions surrounding single commodities, would also have a contracyclical effect similar to that of the CRP, without its lack of precision. It must be recognized that producers will make their interests felt in open or devious ways. We should not shuffle them into the background and then express surprise when they reappear at awkward times to assert their reasonable or extravagant claims. They should be directly confronted by a strong international agency designed to achieve a moving stability in the prices of the world's most important raw materials.

C. D. Calsoyas

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Security for the People. By Roland W. Bartlett. (Chicago: Wilcox & Follett. 1949. Pp. vii, 303. $3.75.)

This book by the chief of the department of agricultural economics of the University of Illinois is apparently designed for the general reader and not for the student in subject matters of economic organization. This does not mean, however, that teachers and college students should not take a look at it. In fact, it is imperative that they do if for no other reason than to observe a summary presentation of a complicated subject matter in 154 pages. Appended are 141 pages of statistical tables and miscellaneous writings by other authors. These range from Lord Macauley on democracy, to steel-belt conveyors, human engineering, cooperative organizations, federal milk orders, and the effect of recent basing point decisions. Presumably, these items and others are added to exhibit the historical trend of "ways of maintaining full employment and high farm income" and, also, to manifest the contention of the author that further stock-taking of security assets is in order to protect economic freedom.

The idea of safeguarding economic freedom by preventing any serious future economic dislocation and suggesting how this be done is the thesis of this book. Monopolies and "the vested interests of the men running them" were the major cause of the Great Depression and these fellows are still in the saddle. They are the social cancer in our economic organization, one of "the rotten parts of our economy" that must be eradicated in order to stop World War III and strengthen the social fabric. There are other means that the author prescribes in the underwriting of economic uncertainty of which a restoration of constructive competition is but one important piece of surgery. The failure of private capitalism in Europe to destroy industrial monopoly is responsible for its decline. We should heed that observation and propagate that lesson. . .

Chapter I proceeds in this temper and tempo. The author is vigorously cocksure of himself. He knows all the causes of depressions and all the answers too. He advocates a broad program of action wherein labor, industry, and agriculture will organize for the common good and let up in self-seeking. Toward this end it is imperative to break the power of monopolies; publicize wage and price policies and let the government umpire "the rules of the game" in the public interest; encourage cooperative associations and have government-operated businesses show the way; guarantee fifty-two pay checks a year; gear payrolls to value of product or to physical volume of output; initiate educational plans to maintain full employment; and, finally, follow through by means of spending and taxing to alleviate depressions. Each of these points is discussed in subsequent chapters and is fortified with statistics —of which, so the author says, there are 200,000 tabulations and computations. These are used for historical documentation and demonstration of direction that government and business policy must take to escape social debacle. The price record of the heavy industries especially attests to unsocial practices compared with the constructive record in markets of farm commodities and in the performance of farm cooperative associations. These latter have substituted "rules of the game" for the "laws of the jungle"; they have curbed monopolies and have conferred public benefits. Somehow the author seems overly fond of and partial to the intelligence of federal milk orders. He suggests that a federal order program for basic manufactures is called for so that they will be umpired into proper social gear.

What is most to be criticized in *Security for the People* is the unscientific and intemperate use made of statistics; the ready sense of moral indignation about what the author regards as economic iniquities; and the injection of hackneyed opinions in support of undiluted sophistries. There are no premises upon which the function of inferential relationships and conditioning factors of causal variables are observed or discussed. In other words, there is no theory, no organization of ideas, no evidence of knowledge of the character of data upon which the validity of fundamental concomitant variations of time series is established. All we have here is a behavioristic interpretation of time series that confuses similarity with fundamental relationships and that insists upon solutions by rule of thumb and intuition. It must be reiterated that an individual datum may be correct and unrepresentative at the same time; that an average may be serviceable provided that we know about the range of the data; and that economics is not a branch and tool of numerical data but that statistics are an instrument of social science for qualitative induction.

The author is not at all modest in assessing and exercising his personal judgment in place of qualifications: this is true; in my opinion; we know that; look at the record; from my point of view; going along with all these facts; unquestionably; the indication is clear; small groups of shortsighted capitalists; and so on. It is not true that England has liquidated its foreign investments to pay for World War II. They are much too smart to engage in such folly. Over the period from 1938 to 1946 the yearly income from this source declined from £205 million to £150 million or about 27 per cent and, as John Jewkes puts it, this is "insignificant in relation to the real difficulties of the nation" (*Ordeal by Planning*, 1948, p. 215). Nor is it reasonable for the author to draw an unqualified and consequential analogy between Britain and the United States (if it were so!) that "the decadence of Britain is directly traceable to the 'survival of the unfit' leaders of private capitalism." There is also a check in order on the contention that 50 per cent of the farmer cooperatives in the United States paid corporate income taxes in 1945. Are these true cooperative organizations or quasi-cooperatives? (*See* Reg. III; Sec. 29, 101 (12)-1, Federal Statutes, Income Tax Regulations).

There is no doubt that some of the objectives that are presented in this book are socially desirable and that most of these are in evidence on verifiable experience. For the author, however, this fund of experience and the rate at which social progress obtains is altogether too slow and dangerous. It is necessary that things be speeded along, that we beat the drums and engage in rapid-fire delivery as he has done here. The book suffers from congestion, repetition, and bad composition. It lacks style, it is unusually bumpy, emphasizes everything and so emphasizes nothing. The author will appreciate it if readers will call his attention "to any discrepancies or errors so that these may be corrected in a later edition." I agree that this is not a bad idea. A new edition might also caution the reader by a prolegomenon to the preface. My choice is one by Will Rogers—"we know lots of things we used to didn't know, but we don't know any way to prevent 'em happening."

ERWIN GRAUE

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Money and Banking; Short-Term Credit; Consumer Finance

Monetary Theory and Public Policy. By KENNETH K. KURIHARA. (New York: W. W. Norton. 1950. Pp. xiv, 393. $4.00.)

The primary purpose of this book, as stated by its author, is to fill the gap between the esoteric literature and the standard textbooks and to provide supplementary materials for use in courses on business cycles, money and banking, economic theory, and other related fields. Its content, degree of difficulty, and general style make it suitable for use in advanced undergraduate courses and as introductory readings at the graduate level where a Keynesian approach is desired.

The book is divided into three principal parts. The first, which is largely introductory, includes a short chapter on the various types of quantity theories, one on the creation and destruction of money, and two chapters on inflation. The second part, which occupies more than half of the book, is devoted almost entirely to a presentation of Keynesianism. It uses the Keynesian analytical framework, adopts the Keynesian point of view as to the actual behavior of the principal functions related to total employment and production, and explores the public policy implications of these theories. The third part deals with the relationship between domestic and international equilibrium. Within the scope of eighty-six pages it discusses international transactions and exchange rates under gold and paper standards, the International Monetary Fund, monetary sovereignty and its relation to international equilibrium, and foreign investment, the World Bank, and employment.

Though this volume contains little that is new and has a number of defects, teachers may find it useful for their classes. This is especially true of Parts II and III. Keynesianism is presented with admirable clarity and in considerably more detail than in most textbooks. The types of public policy suggested by the Keynesian analysis and forecasts are also developed in an interesting way. Part III goes considerably farther than most textbooks in exploring the relationship between international monetary and credit policies and the problem of full and stable employment.

A number of defects detract seriously from the quality and usefulness of this work. In the first place, the reader is likely to be left with an underestimate of both the quality and importance of the contributions to monetary theory by non-Keynesians. Kurihara presents Keynesian theory sympathetically and at length, but his treatment of other theories is less satisfactory. For example, he accords only sixteen pages to the various types of quantity theories, and his discussion of each is too brief to bring out its usefulness for various types of analysis. The chapter on "Non-Keynesian Theories of Saving and Investment" (pp. 131-39) is quite inadequate. It fails to note the important contributions of D. H. Robertson and many others to our understanding of the saving-investment process and to interest theory even though they did not elect to employ the Keynesian theoretical framework. From a reading of this book one gets the impression, which may not have been intended by its author, that non-Keynesian contributions to monetary theory have been of only minor importance.

A second defect is the organization of the book. The over-all structure of the Keynesian theory and the key position of aggregate demand is not presented until Chapter 9 though earlier chapters deal with the theory of inflation, which is stated in Keynesian terminology, the liquidity preference theory, interest policy and full employment, and non-Keynesian theories of saving and investment. Readers would have found it much easier to understand the first eight chapters and to appreciate their significance if the broad outlines of the Keynesian analysis had been presented earlier. The two chapters on inflation would have been far more meaningful if presented after the theoretical analysis.

A third defect is that some subjects are treated so briefly that they may be clear only to those who already understand them. The treatment of quantity theories has already been noted. Other examples are the discussions of the creation and destruction of money (pp. 28-39) and anti-inflationary monetary policies (pp. 64-75).

The book also contains a number of inaccuracies and questionable statements. For example, there appears to be no reason to believe that inflation necessarily "hurts those who have a low marginal propensity to consume more than it does those having a high marginal propensity to consume" (pp. 62-63). The statement that, "A rise in reserve requirements is anti-inflationary in that it reduces the amount of demand deposits in the economic system and excess reserves of member banks for potential credit expansion," is only partially true and could lead to a misunderstanding of the actual effects of such action (p. 71). Few will agree that, " . . . high margin requirements have the effect of *diverting investible funds from speculative to productive channels.* (Italics in the book.) This is important during a period of rising prices, since the use of credit for the expansion of plant and equipment or for carrying larger inventories would make more goods and services available relative to effective demand and thus help to minimize inflationary pressure" (p. 80). In the first place, it is by no means certain that an expansion of loans for carrying securities tends to lessen the flow of funds into real investment. And in the second place, an enhanced flow of funds into investment spendings does not tend to check inflation. The treatment of "hoarding" (p. 107) is unsatisfactory, partly because no clear distinction is made between the effects of the process of accumulating hoards and the effects of having already accumulated them, and partly because of the implication that hoarding by "putting money in the bank to hold it idle" has the effect of increasing bank reserves and lending power.

I question the accuracy of Kurihara's statement that Say's Law "assumes that investment opportunities are unlimited at the going rate of interest (an infinitely interest-elastic investment function)" (p. 132). The propensity to consume and to save is defined as a relationship of consumption and saving to GNP, but in his discussion of their determinants Kurihara does not discuss such important factors as the income-elasticity of tax collections or corporate policy as to depreciation allowances and net saving. Hansen's estimate that in ordinary times the average propensity to consume is 88 per cent relates to net national income and not, as implied in the book, to GNP (p. 155). The argument that a sudden collapse of the marginal efficiency of capital is the same thing as a decrease in consumption sales (p. 166) is misleading, for there are certainly many factors other than an actual decline of consumption that can reduce entrepreneurs' expectations as to the profitability of new investment.

The statement that, "By directing new purchasing power into the proper channels the government can prevent it from 'leaking out' of the spending stream" is somewhat exaggerated in view of the government's loss of control over the new money income after the original spending (p. 217). I believe the author is quite wrong in stating, " . . . at full employment an increase in investment has the effect of reducing rather than increasing the demand for consumer goods and therefore the demand for employment in the consumption-goods industries" (p. 224). The whole treatment of the multiplier is damaged by a confusion of the effects on money income and on real output and employment. The treatment of the domestic effects of devaluation is inadequate in that it ignores the effects on the dollar value of the accumulated gold stock (p. 308).

Though these various defects of the book seriously detract from its quality and usefulness, teachers may still find it of value if they will correct its inaccurate or questionable statements and compensate for its shortcomings in organization. Most of the materials in the book are valid and are presented in a clear and interesting style.

LESTER V. CHANDLER

Amherst College

Deutsche Geldpolitik. By OTTO VEIT. (Frankfurt/M.: Vittorio Klostermann. 1950. Pp. 142.)

Economic conditions in postwar Germany brought out in a particularly extreme and pathological way the nature of money and limitations upon monetary policy. For it turned out that certain commodities had as many, or even more, of the characteristics of money than the monetary unit. A useful definition may, therefore, well have classified these commodities—at least analytically—as part of the supply of money.

Professor Veit, in his *Volkswirtschaftliche Theorie der Liquiditaet,*[1] had provided interesting tools with which to handle this problem. The concept of liquidity was found to be a useful common denominator to both goods and money. The difference between them was merely one of degree, with money ordinarily at one extreme of the spectrum. But money had lost that position in Germany after the war. For certain commodities fulfilled the monetary function of meeting the need for liquidity better than money, so that its value was drastically reduced (p. 98).

In a series of three essays, composing the second part of *Deutsche Geldpolitik,* the author fills in some of the details of the framework outlined in his previous book. Perhaps most interesting is the essay on "Liquiditaet und Gueterstrom," in which the quantity equation of money (MV = PT) is analyzed with the author's tools, and not only found wanting, but incorrect (p. 119). MV should be replaced by the concept of liquidity, and the two are not the same. Money is usually the most important "carrier" of liquidity, but it is not the only one and sometimes not the most important: all goods are to some extent "carriers" of liquidity, and this the quantity equation does not take into account.

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[1] Reviewed in *Am. Econ. Rev.,* Vol. XXXIX, No. 6 (Dec., 1949), pp. 1329-30.

The author's formulation need not be put, however, in terms of conflict with the quantity equation. For what it amounts to in practice is that while the latter does not take account of barter transactions, the liquidity formulation includes them as well as the transactions covered by the quantity equation. The two formulae supplement each other. For many purposes it is perfectly legitimate to be interested only in the narrower monetary formulation, and the quantity equation makes no pretenses beyond this. (It is true the quantity theory sometimes does make such pretenses, but not the quantity equation.) A flight from currency makes the quantity equation less relevant, though this would be fully covered by the liquidity concept. The latter may also be more helpful, for example, in analyzing transactions between countries. But, clearly, both tools have their place.

In the first part of the volume the postwar reorganization of the German financial structure is discussed. The author, who took a very active and constructive part in that reorganization, looks upon it with an air of sceptical sympathy. The Land Central Bank system is regarded as somewhat clumsy and the present geographical decentralization as extreme. The early plans called for a central board to coordinate these banks. At a relatively late stage this idea was dropped and the Bank deutsche Laender was established instead. No adequate reason for this change was ever given by Military Government, nor by the responsible individuals.[2] Professor Veit has been a director of the BdL since its establishment and the discussion of its monetary policies, both as visualized before currency reform and as effected thereafter, make particularly stimulating reading. A clearer distinction between limitations inherent in monetary policy and the defects of the policies actually pursued would have been helpful.

Finally, in the essay on the "Moeglichkeiten eines Europaeischen Geldsystems," the suggestion is made that a Central Bank of Europe be established as partial substitute for the international gold standard. Institutionally, this is visualized as an extension of the German structure, the Central Bank serving as a bank for the national central banks. Each of these is to keep a reserve with the Central Bank, the amount to be related to respective balance-of-payments requirements. The author believes that this would help in forcing an equilibrium in the balance-of-payment situation. It is quite certain, however, that the present malady is too deep-seated to permit of institutional remedies of this type. Unless these more basic difficulties are overcome first, a central bank will not be able to carry out its functions. And once they are overcome, the particular institutional structure will be of relatively minor importance.

This is indeed a provocative and rewarding series of essays. To the student of postwar German monetary thought the volume is quite indispensable.

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[2] Discussion of this matter is omitted both in the official Military Government reports, as well as by General Lucius D. Clay, in his *Decision in Germany*, 1950, and Jack Bennett, then finance advisor, in "The German Currency Reform," *Annals of the American Academy of Political and Social Science*, January, 1950.

Public Finance

Public Finance and Fiscal Policy. By RICHARD W. LINDHOLM. (New York: Pitman Pub. Corp. 1950. Pp. xxvii, 732. $5.50.)

This is a comprehensive text exploring all the fields usually covered in an undergraduate course in public finance. It begins with a brief discussion of the theory and goals of fiscal policy, followed by the traditional four divisions of public finance: expenditures, revenues, debts, and administration. It differs from most texts, however, in the relatively large amount of space (more than two hundred pages) devoted to discussion of expenditures. It also includes a fairly extensive discussion of the relation of banking policy to treasury policy in controlling business fluctuations.

The book contains much descriptive material, including considerable statistical data drawn from current American governmental practices and from historical developments. The chapters on expenditures are, in fact, a comprehensive description of the activities of the federal government and, to a lesser extent, state and local governments. This type of material dates a book quickly, but it is very useful for both student and teacher while it is still current, and the author is to be commended on the pains he has taken to keep the discussion abreast of current developments. The historical material, too, is useful background for understanding and discussion of current problems.

This text is more of an encyclopedia than a guidebook. Consequently, it is better adapted to courses where it is necessary to lean heavily on a single text than to those where wide reading in a well stocked library is practicable. Each chapter is supplemented by useful questions for review and an annotated bibliography for further reading. A glossary of technical terms at the end is also helpful for the student.

Professor Lindholm has devoted a great deal of space to policy discussion. Since public finance has always been the concern of administrators and politicians as well as of economists and political scientists, this is not only appropriate but is one of the most useful contributions of the book. The author is realistic in his approach and follows a middle course that would be difficult to quarrel with. Occasionally, however, he gives *the* answer in a field where there is still real controversy, without sufficient support and without stating the alternatives. This is true, for example, in the discussion of federal aid to education (p. 118). It is not that the reviewer believes that the author should conceal his own views, but that the reasoning underlying his conclusions should be more definitely stated than has been done in the case cited.

The initial treatment of fiscal policy is, in the judgment of the reviewer, too brief for students not already well grounded in these theories; and while the later treatment of revenues, expenditures, and debts has the merit of keeping before the reader the implications of the various measures under consideration for fiscal policy, the underlying assumptions are not set forth clearly and in sufficient detail at any point. Consequently, the references to fiscal policy throughout the book tend to become repetitive rather than deepening the reader's understanding.

On the whole, the reviewer believes that this will prove a useful text for courses emphasizing institutional materials rather than theory. Its shortcomings are not serious, and the wealth of factual data, well organized and up to date, is an important asset.

MABEL NEWCOMER

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Federal Tax Reform. By H. C. SIMONS. (Chicago: Univ. of Chicago Press. 1950. Pp. x, 161. $3.50.)

The editor of this book in a prefatory note repeats an opinion that the important literature on public finance would take up very little space, a considerable part of which would be occupied by the work of Henry Simons. If only for its boldness of conception and brilliance of satire, this posthumous contribution of Simons' should pass muster for the exclusive circle.

The author characteristically renounces all inhibitions associated with political feasibility. Like the architects of Utopias, he hopes, perhaps, to influence immediate trends by portraying what might and ought to be; or perhaps he chooses to surmount the ignoble forces of the political market place and take a stand that makes no compromises with his integrity. The legitimacy and usefulness of his rôle in either case will be conceded; but his dismissal of others who labor in the realm of the possible, charging that they only "articulate a prevailing concensus," will bring warranted dissent.

Professor Simons' tax philosophy was conditioned in no small degree by his well-known general economic views, notably his keen distrust of government and the "industrial syndicalism" that supports its extension. Witness his stress of the point that "good taxes are a protection against bad spending"; his stipulation that new spending should always be preceded by reduction in income tax exemptions; and his (intimated) doubt as to "whether, at any actual or proposed levels of outlays, governmental services are worth their direct cost plus the inevitable efficiency loss in the private sector of the economy." Nevertheless, one need not agree with all of Simons' economic predilections to find a high degree of merit in many of his tax proposals.

Although a large part of Simons' work is devoted to the conservation of incentives, the reviewer reserves his greatest applause for the author's stubborn insistence on the ethical aspect of taxation. Here is a man with a conscience and a profound loyalty to the best tradition of equity in taxation. Witness his sound intuition that a dollar of receipts is still a dollar of income and loses none of its potency by being labeled "capital gains"; also his contention that "we should rid our system of taxes which have no fairness in them from the margarine taxes to the corporate levies"; or his stress upon the present gross impairment of equity by dissimilar taxation of, or unequal enforcement against, persons in similar circumstances (unneutrality).

For incentive, the author offers business (incorporated and unincorporated) the privilege of unlimited reinvestment of business earnings tax free except for later withdrawals (consumption) and realized capital gains including those constructively realized at death or gift transfer. This is a very large order and more than the reviewer can take. It carries the trusteeship theory of wealth and the idea of posthumous settlement with the tax system to very great lengths indeed. But there can be no doubt that from the enterpriser's standpoint parity treatment of capital gains is a small price to pay for this advantage. Says Simons to business:

> Leave your earnings in the business if you so desire. I won't tax you, while you live on any earnings reinvested. In fairness to other taxpayers, you and I must have a final and comprehensive reckoning sometime (after you are gone, or if you get indolent with age, when you retire from ownership participation in the enterprise). Pending that time, however, you may, as it were, borrow from me without interest what you would pay additionally under partnership procedure or the annual reappraisal scheme. Besides, if you lose the accrued taxes which I'm temporarily foregoing, along with the rest of your reinvested earnings, I'll take the loss myself.

Much of the author's work is an effort to rid the tax system of its time dimension, an aspect that bedevils the administration, works grave unneutralities, and clutters the law with such headaches as Section 102, Supplement P, Subpart E, and so on. To this end he offers the elimination of the business tax, the averaging of personal income, the final settlement described above, and freedom to manipulate the "basis" upon which ultimate gain and loss will be measured. (This latter idea means, in effect, that one could choose his time in settling with the revenue for reinvested earnings.) The author is highly intrigued with this innovation and devotes a good deal of space to its elaboration and defense. It is significant that the (general) averaging plan which Simons considers simple and easy to apply has never commended itself highly to those engaged in the practical rôle of administration. And to this reviewer it seems that in general timing is too important for the immediate revenue and distribution of income, wealth, and power to be banished in such wholesale fashion even though it would achieve an impressive and felicitous simplification. But the author has at least focused attention on perhaps the weakest spot in the revenue system.

Not the least of the author's services is the blistering, ironical punishment he administers to the wishful thinking and hypocrisy that characterize popular (and even professional) attitudes in public finance: to the orators who talk about a worthy end but are bitterly opposed to all concrete measures to attain the end; to the businessman's quest for loopholes when his legitimate target is surtaxes; to the unmitigated racket that masquerades under the phrase "depletion allowances." This is a superlative job and deserves the applause of the tax fraternity and indeed of all honest men.

Henry Simons' parting shot at the tax system is a fitting memorial to a rare spirit, an incisive mind, and an uncompromising conscience.

HAROLD M. GROVES

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International Economics

The Commerce of Nations. By J. B. CONDLIFFE. (New York: W. W. Norton. 1950. Pp. xi, 884. $7.50.)

Since the conclusion of World War II, official American policy and thinking in the field of international economic relations have, as is well known, been centered on the objective of establishing freer, multilateral world trade and general interconvertibility of currencies. Our huge foreign aid program, our sponsorship of the Bretton Woods institutions and the I.T.O., and other of our foreign economic policies have all been concrete manifestations of our strong desire to achieve this broad objective. Yet the experience of recent years has revealed only too clearly the difficulties and resistances in the way of a restoration of multilateralism, as well as the increasing degree of doubt regarding its feasibility and even its desirability. Our objective seems ever to recede in the distance in the face of powerful politico-economic forces that continue to bind world trade in chains, to channel it bilaterally or regionally, and to impede the desired reintegration of the world economy on liberal lines.

In an effort to cast a long perspective on the present disoriented state of international economic relations and to evaluate future prospects, Professor Condliffe in his new 884-page book has addressed himself to the ambitious task of tracing the history of world commerce from its earliest beginnings in the ancient world, of analyzing the changing economic, political and social milieu in which it has operated and which it has partly helped to shape, and of examining the changing theories and policies associated with its development. The book is a skilful blending of economic history and *Dogmengeschichte* leading up to an analysis of present-day international economic problems. The primary emphasis throughout, however, is institutional in the broadest sense of that term, and the theoretical sections of the book are relegated to a decidedly secondary place and are generally on a non-technical level. Neither the economic historian proper nor the international trade theorist is likely to be entirely satisfied with Professor Condliffe's treatment of their respective fields—the book being apparently addressed chiefly to the intelligent lay reader—but both will benefit by a careful reading of this important study.

The author justifies his historical approach to present-day problems on the grounds that, while history provides no ready-made answers to them, they are the product of historical development and can be understood only in the light of their origins; and that the current ideas and pattern of thinking on international economic issues are also the result of a long evolution. Yet one might legitimately question whether such an approach, useful and revealing though it undoubtedly is, justified devoting almost 620 pages to the period up to the end of World War II (of which 300 pages relates to the nineteenth century), as compared with only about 225 pages to current issues. It seems doubtful that such a lengthy treatment of earlier foreign trade developments and doctrines was really necessary for Professor Condliffe's stated purpose, the more so since at least the broad historical outlines are already generally well known. One cannot escape the suspicion that the author was primarily interested in writing a history of international trade *per se;* if so, it must at once be admitted that the historical part of the book can well stand by itself as an absorbing and scholarly piece of work.

In the historical sections of the book, one's attention must inevitably focus chiefly on Professor Condliffe's extended treatment of the nineteenth century, dealing with the practice and theory of *laissez faire*, the classical theory of international trade, the fight for free trade, the reaction against free-trade theory and policy, the network of world trade, the international movement of capital, and the gold standard mechanism. This long section, which in my judgment is the most interesting part of the book, was obviously for Professor Condliffe a labor of love, and he does not attempt to conceal his admiration for the smooth functioning and the efficiency of the competitive system of multilateral world trade and payments which had emerged by the latter half of the century and which he describes as the century's "crowning economic achievement." And yet he is quick to admit that that system had some shortcomings, too; that its functioning was based on a combination of historical circumstances no longer existing today; and that the classical theories of international trade, although containing some broad and lasting truths, were likewise based on assumptions that for the most part are no longer valid. Professor Condliffe's treatment contributes much to our knowledge of the institutional bases of the pre-1914 world trading system, but he adds relatively little on the purely theoretical side. It is regrettable, for example, that in his analysis of the working of the gold standard (which generally follows the conventional lines) he did not see fit to take into account the relations between balance-of-payments adjustment and international cyclical fluctuations (indeed, cycles are hardly discussed at all). Moreover, his treatment of the London money market would have benefited had he more clearly drawn the distinction, emphasized by Viner (*Economica*, May 1945, pp. 63-64), between London as an international clearing house for exchange business and as a "manager" of the gold standard.

Professor Condliffe follows with a detailed examination of interwar and post-World War II experience, and of the broad economic, political and social forces shaping that experience, including treatments of: the failure of attempts during the 'twenties to restore the pre-1914 world trading pattern; the increasing intervention of governments in economic affairs; the revolutionary changes in the structure of business enterprise and in technical methods; the restoration and collapse of the gold standard; the economic nationalism and monetary disintegration of the 'thirties; the distortions arising from war preparedness and from World War II itself; the subsequent impoverishment of Europe, the special difficulties of Great Britain, and the American foreign aid program; the crumbling of imperial systems; the growing challenge of Soviet Russia; and the organization and purposes of the United Nations, its specialized agencies, and the I.T.O. All these matters are carefully and competently handled, although they cover ground that for the most part has already been well trod by others. Interspersed are also some brief doctrinal discussions of neo-classical economics, Keynesian economics, and the theory of monopolistic competition.

At the end of the book Professor Condliffe finally turns to his analysis of current international economic problems. Coming after the long historical review, this section is somewhat disappointing. Space limitations prevent more than an extremely brief summary of some of the major conclusions.

Professor Condliffe argues that any rewriting of international trade theory or any detailed program for the reconstruction of world trade—neither of which he attempts—must recognize that the competitive system of earlier days has gone for good; that monopolistic competition and government intervention in economic and monetary affairs are here to stay; that planning for full employment and for economic development are now major considerations of national policies; that the structure of economic organization has been altered radically; that we live in a world of "mixed economies"; that the old colonial system based on exploitation of backward peoples will no longer be tolerated; that considerations of national power and security are of great significance; and that the so-called automatic mechanisms of balance-of-payments adjustment can hardly be expected to be as effective as in the past. Each of these matters is elaborated in some detail.

Despite these and other profound structural changes in the world economy, we must, according to the author, insist upon and strive as far as possible for freer world trade, which he argues is in the ultimate interests of all countries. While freer trade can no longer be justified on the logic of the comparative cost principle, its case can still rest fundamentally on the broader grounds of the benefits of international specialization and the territorial division of labor. But we will have to recognize that any multilateral system that develops in the future must make numerous exceptions to the principle of nondiscrimination and incorporate large elements of planned trade. The main hope for avoiding excesses of economic nationalism in the future must, according to Professor Condliffe, lie in international mechanisms for consultative cooperation, such as the International Monetary Fund and the I.T.O., and it is also through such mechanisms that he hopes that a "middle ground" can be found in which freer trade policies and full employment objectives can be harmonized. The United States, for both economic and power considerations, has a special stake in freer trade and is in the most strategic position to promote its achievement by reducing its own trade barriers and by aid to foreign countries. In particular, Professor Condliffe stresses the need for the export of technical skills, as well as capital, to undeveloped (especially Asiatic) areas, for in his judgment the expansion of productivity in these areas is the key to a restoration of multilateral world trade.

Because of its broad sweep, its scholarship, and its elaboration of an unusually wide range of problems (including its emphasis on the frequently neglected socio-political forces shaping the pattern of international economic relations), Professor Condliffe's book cannot fail to command respect. On the other hand, it is to be much regretted that the book is so long and verbose; a substantial reduction in size and greater selectivity (especially in the historical sections) would surely have made for a much more readable book and, above all, have brought more sharply into focus the really pertinent issues. As it stands, the book's great length will undoubtedly reduce sharply the potential reading audience which it would otherwise have attracted and which it deserves.

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L'Étalon–Or, son Avenir après l'Accord Monétaire de Bretton Woods. By J. PERRENOUD. (Paris: Librairie Générale de Droit et de Jurisprudence. 1948. Pp. xx, 349. 18 sw. fr.)

Even to readers who sympathize with the author's leitmotiv, the decadence of gold as a medium of international payment, the digestion of this thick book may prove a little irritating. (To those who do not, his passionate plea will probably provoke passionate disagreement.) It requires unusual patience to follow the lengthy and often textbook-like exposé of bits and pieces of monetary theory, which should either have been taken for granted, such as the historical development of the forms of money, or omitted altogether because they are irrelevant for the purpose of the book, for instance, the quantity theory. The feeling of frustration which the book arouses probably results from the persistence with which various monetary doctrines and events are made the occasion for forced comparisons with the gold standard, instead of being judged on their own merits.

Mr. Perrenoud's line of argument can be summarized as follows: the gold standard as an international monetary system is utterly out of date; it was responsible for many of the evils of the interwar period, and has no chance of regaining general acceptance, because the nations will no longer agree to subordinate the first requirement of their domestic policy, full employment, to the stability of the exchange rate. The Bretton Woods agreement is an outgrowth of the new philosophy and is commendable to the extent that it breaks away from the gold standard. But it does not go far enough. It is now necessary to prepare for the complete demonetization of gold, and the author proposes a draft international agreement for this purpose.

About two-thirds of the book is devoted to an assessment (a disparaging one) of the gold standard. It is admittedly difficult to find unturned stones on such a well trodden path. Extensive readings cast a spell over the author, who all too often exorcises the errors of Professor X by quoting the pronouncements of Professor Y. Some of the more original contributions are not too fruitful. The essential purpose of the book being to compare the Bretton Woods agreement with the gold standard, the utmost care should have been taken to arrive at a meaningful concept of the gold standard. As one of the pivots of the book, it is unsatisfactory. The author starts by defining an "international monetary system" in general. Such a system, he maintains, is constituted by "the various international currencies and the customary or legal rules governing monetary organization and policies" (p. 23). He then proceeds to analyze the concept of *international currency,* using for this purpose an approach which is claimed to be original. An international currency in the strict sense is a currency that entitles its holders to make payments in several countries. Such international currencies may be used directly or indirectly. When used directly, they do not need to be converted into local currency. They are used indirectly when they have to be converted into local currencies. To the first type belong gold and the coins of the "Latin Union." We are told that this distinction is important. The author, however, winds up with an astonishing definition: "A currency is said to be international, as long as it can be exchanged against the national currency of several countries." It is difficult to discover any currency that could not meet that test. The book does not even relate the concept of international currency to the part played by certain currencies in world trade or as exchange reserves. It is scarcely surprising that such a legalistic and formal approach bears little economic fruit.

The author then proceeds to explain what the gold standard is. He recognizes three necessary components in the gold standard system: (1) the use of gold as international currency; (2) a fixed price for gold, in contrast with other monetary metals; (3) freedom of exchange transactions and gold movements. To these basic conditions are added other rules which, the author asserts, have in fact been generally associated with the gold standard, namely: (4) Central Banks are obliged to maintain a minimum gold reserve; (5) Central Banks buy gold at a fixed price (*sic*); (6) the credit policy of the Central Banks is determined by the variations of their gold reserves.

Conditions (2) and (5) are obviously identical. Moreover, they are interpreted far too rigidly, as implying that any change of parity is incompatible with the gold standard. Condition (6), on the other hand, is not given the importance which it deserves. And in the rest of the book the author, going beyond his technical definition, finally includes under the condemnation of the "gold standard" an economic philosophy and many wrong policies followed in the interwar period, so that he attributes to the "gold standard" many more sins than it can possibly have committed, and as we shall see, to Bretton Woods more virtues than it can possibly have.

In the second part of the book, the author analyzes briefly the Bretton Woods agreement with its history. On page 232, it is stated that the International Monetary Fund began its operations in May, 1947. The Fund actually began functioning in the summer of 1946, and before the end of that year had already agreed on par values with most of its members, collected subscriptions and set up its machinery.

The question foremost in the mind of the author is the following: "Who is right, those who pretend that the Bretton Woods agreement restores the gold standard, or those who contend that it creates an entirely new and different system?" (p. 235). The author reasons, first, that the Bretton Woods agreement stresses the cooperation of central banks, whereas the gold standard was based on competition, and second, that the new system is conceived "so as to promote prosperity and full employment, even at the cost of exchange stability if it is necessary to go that far." Furthermore, Bretton Woods over-throws two fundamental rules of the gold standard. The gold price is no longer permanently fixed. It can be modified universally by a decision of the Fund under Article IV, section 7. On the other hand, the Articles of Agreement reconcile the conflicting aims of exchange stability and high levels of trade and employment. They do so by allowing certain exchange restrictions under the control of the Fund, and by increasing the amount of international currency "but not sufficiently to enable any country to maintain its exchange rate under any circumstance." The Fund receives most praise from Mr. Perrenoud for allowing flexibility of exchange rates. This judgment, I venture to say, depends upon what one is willing to read into the Articles of Agreement. Professor Frank Graham wrote a year ago, "There is a strong bias in the statute toward the ideal of rates maintained unchanged for an indefinite lengthy period" (See "The Cause and Cure of the Dollar Shortage"—Princeton University). Instead of recognizing that the gold standard is merely a technique for the settlement of certain international balances, Mr. Perrenoud has stretched the concept so far as to make it a catchall for a social philosophy, the blind belief in the virtues of gold, the overvaluation of sterling in the 'twenties, the detestable investment policies of the same period, etc. It then becomes easy to contrast the purposes of the "fathers of Bretton Woods" with such outdated doctrines and pathological aspects of international finance. An attempt to appraise the purpose and potentialities of Bretton Woods against the actual problems of the postwar world would have yielded more illuminating lessons than the endeavor to decide whether Bretton Woods resembles the gold standard or not. This is a legal rather than an economic issue. I must add that Mr. Perrenoud has two excuses for having started on this dead-end track. One is that, when the book was written in 1946, very few people had a clear notion of what the postwar problems would be. The other is that he is the offspring of a line of continental economists noted more for the ardor of their convictions than for the conclusiveness of their demonstrations. He is to be praised for revolting against their erroneous and shallow teaching, but to beat them, it is not enough to use their weapons. Better ones are needed.

RAYMOND BERTRAND

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Business Administration

Dynamic Equipment Policy. By GEORGE TERBORGH. (New York: McGraw-Hill. 1949. Pp. xxiii, 290. $3.75.)

Fame and fortune await the discoverer of a simple and complete rule prescribing the moment at which existing production equipment should be replaced. George Terborgh takes a substantial step toward this elusive objective in *Dynamic Equipment Policy*. In three words, his essential contribution is the "integration of obsolescence" into the *applied* theory of replacement. But the book also contains more. An anthology of folklore of present replacement procedures is presented, and the revelation is dismaying. Any one who suspects that Terborgh, the director of research of the Machinery and Allied Products Institute, has been unfair in his review of current replacement policy need merely review the technical management literature for himself. He will discover that Terborgh has been overly kind in his exposé; present practice—not to be dignified with the term policy—*is* based on folklore and viable habits. That this is not evidence that businessmen are fools is attributable to three dominant facts: the obscurity of future machines and their operating characteristics, the sheer complexity of the formula by which costs of replacement now may be compared to deferred replacement, and the dependency of business survival upon achieved relative superiority and not upon perfection in the method of seeking an aspired objective.

Terborgh, like a guide, first points out the dangers of unguided action (Chapter 1); he then specifies the nature of the problem (Chapters 2-4); following this he states his fundamental premises which are to serve as landmarks to the guide (Chapters 5 and 6). Short-cuts and practical applications appear in Chapters 7-10. Chapters 11-14 criticize the folklore of current practice, while Chapter 15 concludes with a general summary of the analysis. Fourteen brief appendices supplement the text.

Terborgh's statement of the problem emphasizes two points. First, the cost of operating a given item must be compared with the alternative of the best available machines during the successive years of the life of the machine. As better alternatives appear in the future, these must be treated as the available alternative. In other words, operating costs of various machines must be compared or measured from the best alternative—on a top-down principle. This difference, "operating inferiority," is a combination of deterioration in existing equipment and improvements in new—appearing as obsolescence in the old. Second, predictions of the future potentiality of unborn machines must be made—not exorcised.

The problem posed by Terborgh is that of minimizing this operating inferiority subject to the capital costs inherent in frequent replacement. Only by turning in machines every year could one reduce operating inferiority to zero. But this incurs large annual capital costs. By delaying replacement, even at the expense of rising actual and falling alternative operating costs, total costs may be lower because capital costs may thereby be reduced even more. The problem in replacement is to estimate the life of each machine before replacement which minimizes the discounted value of operating inferiority plus the discounted capital outlays.

Now it can be shown (but Terborgh does not do so) that the period of economic life of future assets which minimizes the discounted value of cumulated operating inferiority relative to best available equipment is the same life length that minimizes absolute total costs above a base of zero. Terborgh's ensuing recommendations would have been more understandable had he presented a clear demonstration of this fact; instead, the reader may experience some confusion. Although Terborgh's operating inferiority concept is redundant in strict logic, it has the psychological and propaganda power required to forcefully call attention to the phenomenon of obsolescence—

which Terborgh shows is all too frequently ignored in many varieties of customary analysis of replacement policies, and which incidentally justifies "*Dynamic*" in the book's title.

Another minor source of possible confusion is the omission of an explicit proof of the fact that his criterion for replacement is equivalent to comparing the costs of replacement now with replacement a year later. He does state that comparing the first pieces of equipment in two long series of replacements is adequate since the rest of the series have the same adverse minimum, by assumption. But the reviewer suspects that other readers will, like this reviewer, find it difficult to understand why Terborgh's method of comparing costs gives a consistent answer. Terborgh obtains the excess of operating, depreciation and interest costs of the present machine over the operating costs (only) of the new challenging machine. This excess for the first year is compared with the minimum annuity average of the present value of the stream of operating inferiorities of future machines. If the former exceed the latter, replacement is signalled. Perhaps other readers will not be so obtuse as this reviewer, but after intensive search of the book he had to resort to paper and pencil and mathematicians in order to prove that Terborgh's method did give a consistent answer. In fact, it is exactly equivalent to comparing $(rP + g/r)$ with E, where r is the rate of interest, P is the present worth of the entire stream of minimized costs [by optimum replacement period] associated with immediate replacement, g is the annual amount by which operating costs of new machines decline (Terborgh's inferiority gradient) and E is the cost of running the defending equipment one more year (including interest and depreciation). Whether Terborgh's version of this inequality is simpler is open to question, but its consistency is not.

Since practical applications of guiding principles will be made only if simple forms of such principles are available, Terborgh derives simplified approximations by simplifying assumptions. One assumption, which can be dropped without much loss in simplicity, is that salvage or resale values of existing—defending—assets is zero. Another is the linearity assumption for the combined rates of deterioration and obsolescence. The second approximation, linearity, is the powerful element leading to the simplified formulas.

If salvage values should be large enough to be effective, an additional simple calculation is required. But there is no escape from the question of the validity of the linearity approximation. However valid the linear approximation may be, Terborgh's defense of it is the weakest part of his analysis and does not contribute to one's confidence in it. He writes: "Is any alternative assumption more reasonable? We know of none. In general, when the future cannot be foreseen, the best we can do is to project a continuation of the present. All prediction rests, in the last analysis, on the premise that the past contains elements of recurrence or continuity that will repeat themselves hereafter. In the absence of evidence to the contrary, therefore, the presumption is in favor of repetition. . . . It would still be by far the best standard assumption because of the unique simplicity . . . it makes possible" (pp. 64-65). Appeals to insufficient reason and to simplicity do not constitute justification of assumptions. In addition, the empirical data are presented in such summary form that the hypothesis of linearity cannot be tested.

Instead of straight line approximations, one could use modified exponentials, but the equations would then be more formidable and less subject to simplification. An electronic computer would then be necessary for rapid flexible computations, but these now exist and are available for such application.

Weak as the arguments given by Terborgh for his linearity assumption may seem, his assumptions and analysis are incomparably superior to the implicit assumptions and procedures which dominate the current folklore methods of replacement analysis. For example, his discussion of the interest charge for discounting purposes exposes several fallacious practices (pp. 160-175). However, Terborgh seems to be not completely fair in his criticisms of the minimum pay-off period method, which requires that the new challenging machine be able to pay for itself in saving within a given number of years, *e.g.*, three or four. Terborgh correctly states that this leads to use of equipment beyond its economic life. More economic equipment is not used because only spectacular new innovations or machines will be sufficiently economic to be adopted. It can be argued, however, that this short pay-off period is merely a way of allowing for uncertainty in one's costs predictions. By replacing only if the savings appear very large, one is protected against large underestimates of future costs—a serious error if the manager is more afraid of losses than he is attracted by increases in profits. This is the type of behavior that is conceived by the existence of uncertainty and the observed irregular rates of obsolescence, and nurtured by a fear of losses. It is this element of uncertainty which frequently justifies caution; rules of behavior based on single valued estimates are often fatally bad for behavior where uncertainty exists.

Terborgh could answer that this type of uncertainty should be considered explicitly by allowing for alternative estimates of future obsolescence rates; bracketing values for future deterioration and obsolescence rates should be used.

This weakness—and one that is inherent in lack of knowledge of the future—is merely another facet of the weakness of the justification for the linearity assumption. These last aspects of uncertainty indicate a major question in replacement theory. Does a formula based on certainty of foresight and solved with alternative values of the variables provide sufficient allowance for uncertainty, or is a new principle required for the actual world of uncertainty? One is reminded of the use of pure competition as an approximation to oligopolistic situations. A related aspect of the problem is the competitive element of reciprocal action between competitors—a situation in which relative advantage and survival is more important than absolute advantage and perfection of objective. Much work remains to be done with uncertainty, and replacement policy appears to be a promising field of application which may yield new insight.

Upon noting that replacement is part of gross investment, one will realize that the book makes a substantial contribution to our understanding of gross investment policy. It is no accident that the author of the *Bogey of Economic Maturity* and of *Dynamic Equipment Policy* should be the same person. Terborgh early shows that his book is an analysis of one of the major factors affecting the rate of investment and growth of an economy. Surely some of the effort now devoted to trying to predict decisions in investment policy through elaborate statistical and interview procedures should be redirected to the more mundane but influential decision process of the type studied by Terborgh.

In summary, *Dynamic Equipment Policy* is a valuable contribution to replacement policy. Its verbosity reduces comprehension time for the non-mathematically trained reader.[1] Because it is too detailed for the typical business executive, Terborgh promises to issue a manual for practical application.

ARMEN A. ALCHIAN

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Management of Industrial Enterprises. By RICHARD N. OWENS. (Chicago: Richard D. Irwin. 1949. Pp. xvii, 650. $5.00.)

This is a college text prepared for an introductory course in the management of manufacturing enterprises. There is no marked difference between it and other leading texts as to subject matter, but it has distinct merit insofar as it reflects meticulous care in its preparation. The author manifests a complete understanding of his subject and a thorough knowledge of the literature in the field, particularly the earlier writings of Taylor and his contemporaries. One may gain the impression that the doctrines advanced by the author are somewhat out of date. Yet there are many references to developments during World War II and in the years that have followed. It is likely that Frederick W. Taylor, were he living today, would have views on management quite different from those he espoused a half century ago. Even the Gilbreth doctrines are taking on a new look, which is not adequately emphasized. For example, there is only brief mention in the book of methods-time measurement (p. 314).

Notwithstanding close adherence to the doctrines of the past, it is a good text. Its outstanding merit is its teachableness. In the first place, it contains forty-four chapters—a chapter a day for the usual number of recitation periods in a semester. The outline leaves little room for criticism. It is divided into ten parts. Each part thoroughly covers the subject assigned to it, without repetition in other parts. Each chapter is a complete outline of a segment of what takes place in industrial management—with very little controversy as to why it is done that way. That is to say, there is a studied effort not to confuse the student's mind.

Part I, "The Evolution of Management," gives in fifty pages as much historical background as is necessary to prepare the student for an appreciation of what is to follow.

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[1] The mathematician, for whom the book was not written, would be benefited by a brief technical appendix precisely setting forth the criterion and derivation of formula.

Part II, "Equipment and Working Conditions," deals with plant location, buildings, machinery and equipment, layout, and such factors of good working conditions as light, ventilation and control of noise.

Part III, "Organization, Leadership and Morale," covers as completely as seventy pages will permit the basic principles of business organization in a manufacturing establishment.

Part IV, "The Product," deals with product design, research, simplification, standardization and product control.

Part V, "Production Standards," explains the principles of motion study, time study and the setting of production standards.

Part VI, "Wages and Incentives," deals with the theory of wages and wage systems, as well as the principles of job evaluation and merit rating. Unless students have access to one or more complete courses in labor and labor relations, this brief coverage may seem inadequate. Yet the author has shown commendable restraint in limiting his discussion to the bare essentials of the relationship of labor to factory management.

Part VII, "Industrial Relations," devotes one-hundred pages to the work of the industrial relations department, including contacts with the union, and the conduct of a personnel department. This section is not as strong as some of the others, and probably deserves the criticism already made of Part VI. It skims the surface rather lightly.

Part VIII, "Procurement and Storage," has a chapter on purchasing, one on inventory control, and one on storing material and supplies.

Part IX, "Control of Production," covers production planning, routing, scheduling and dispatching, with one chapter on production planning in continuous manufacturing.

Part X, "Budgeting, Costs and Sales," deals briefly with the financial aspects of manufacturing management. The final chapter on sales outlines the procedures for marketing manufactured products.

At the end of each chapter is a list of carefully worded questions, which should be a great help in stimulating class discussion.

For the harassed teacher who must lean heavily on a text to carry a course in production management, this is a nontechnical treatment of the subject that can be highly recommended.

C. L. JAMISON

University of Michigan

Depreciation. By EUGENE L. GRANT and PAUL T. NORTON, JR. (New York: Ronald Press. 1949. Pp. xii, 472. $5.00.)

The subject of depreciation has developed over the past two decades a voluminous literature, characterized by a notable dearth of comprehensive general treatises. Until the appearance of the work under review, the only such treatise, from American sources at least, was Salier's *Depreciation Principles and Applications,* the most recent edition of which is dated 1939. A new book is, therefore, exceedingly timely.

Not only is it timely; it marks a distinct advance over its predecessor.

Written by two engineers of wide practical experience, it is a comprehensive, well-informed, up-to-date discussion of the practical aspects of depreciation, both as a management problem and as a tax problem. For anyone wishing to familiarize himself with the subject on a brass-tacks level, this is the book to read. It seems safe to predict that it will stand for a good while as the authoritative treatise in the field.

It is not intended as disparagement of a work so eminently practical in purpose and design to say that it makes no significant contribution to the theory of depreciation. Neither is it disparagement to say that it makes no attempt to measure depreciation statistically. These comments are in order for the guidance of economists interested primarily in theory, or statisticians looking for new figures. The book is written for the accountant, the engineer, the business executive, the tax administrator—not for the academic theorist.

If we may venture one general criticism, it is that the authors have failed to resist the temptation to give too much space to a subject only indirectly related to depreciation, the making of engineering economy studies. The temptation is understandable when we recall that both men have written and spoken extensively on the subject on which they rank as authorities, but the result is a digression too long for the context and not long enough for an adequate treatment. Even if the analytical procedures outlined were unobjectionable—and in some respects they seem to this reviewer seriously defective—it would still be better to reserve their development for a more suitable occasion.

Notwithstanding this blemish, the work remains, so far as its real subject, depreciation, is concerned, a generally sound and sensible exposition for the practical reader.

George Terborgh

Washington, D.C.

Industrial Organization and Markets; Public Regulation of Business

Competition among the Few. By William Fellner. (New York: Knopf. 1949. Pp. ix, 328, iii. $5.00.)

Professor Fellner has written a thoughtful and stimulating book on the theory of oligopoly and bilateral monopoly. He traces the development of the modern theory, and he seeks to emend, systematize, and elaborate this theory. If, as I believe, Fellner's own theory is unacceptable in its present form, he has demonstrated the fatal weakness of much modern theorizing on oligopoly and contributed to a clearer understanding of our present task.

I shall not delay over Fellner's summary of the development of the modern theory of oligopoly (Chaps. II, III). This survey, which includes a detailed restatement of Stackelberg's theory, is well done. I would register only one complaint, but that not negligible: only ostensible theories of oligopoly are discussed, and the extensive but scattered literature on the economics of collusion is passed over.

The constructive analysis is built—without much attention to architectural elegance—around three propositions: (1) Three factors seriously qualify the desire of monopolies and oligopolies to maximize profits; (2) Oligopolies are further limited in their maximization of joint (industry) profits by the agreements they make on the division of these profits; and (3) The division of profits among firms is governed by four psychological and institutional factors.

First, let us consider the three qualifications of profit maximization: they are the desire for safety margins; the effect on short-run decisions of long-run effects; and the conflicting interests of "ownership and control" (Chap. V). Fellner tells us that a firm tries to maximize the difference between price and average cost (so far as safety is concerned), because then it is best protected against parallel shifts of these functions, and "it is reasonable to assume that the unfavorable possibilities against which safety provisions are made are very largely *these* shifts in demand and cost functions" (p. 153). I think he is being carried away by his particular geometrical formulation. Why not maximize the difference between the logarithms of price and average cost? Or better, why not maximize the difference between total revenue and total cost, which is the safest policy (for parallel shifts) for getting some profits, and incidentally maximizes them? Until Fellner analyzes the uncertainties a firm faces, his conclusion must hang in air.

The distinction between maximization of profits and maximization of the present value of the firm is essentially verbal, as Fellner observes (p. 164). (Nevertheless he wishes to "qualify" the latter principle because the present value of a firm need not equal its potential sales value [pp. 165-66], a point the relevance of which seems debatable.) On the differing objectives of ownership and control groups, no definite conclusion is reached (pp. 169-74). Fellner's first proposition requires further development if it is to be useful and convincing.

Let us pass on to the major theme of the volume: the demonstration that often no satisfactory method of dividing up the industry's profits (or sales, or whatever is divided) will be consistent with maximization of industry profits (Chaps. IV, VI). Consider the following example (pp. 131ff., 191ff.). Two firms, one with higher marginal costs than the other, somehow reach an agreement to divide sales or profits. The joint profits would be maximized if each firm operated where its marginal cost equals industry marginal revenue, with the lower-cost firm producing the larger output. If the firms agree to divide sales equally, they cannot reach this most preferred position, and must operate where the average of the marginal costs of the two firms equals industry marginal revenue. If their agreement is to divide profits equally, the firm with the higher costs must produce the larger output.

These deviations from maximum profit could be eliminated if the firms pooled outputs or profits. Thus, to divide sales equally, the lower-cost firm could turn over some of its output to the higher-cost firm; to divide profits equally, the lower-cost firm could turn over some of its profits to the higher-cost firm. The policy of pooling is objectionable, Fellner says, because the higher-cost firm is put in a weak strategic position. It loses contact with customers and suppliers, has a smaller skilled-labor force, etc., so if the agreement should break down the firm will be less able to maintain its share of sales or profits (pp. 133ff.).

The inconsistency between the rule of division of profits between firms and their costs of production is only one, although an important, cause of limitation of joint profits, in Fellner's theory. The other causes (threat of cutthroat competition, uncontrolled technological and product rivalry) also stem from the fact that "the strength of the participating firms in relation to one another changes, and is known to change, in an unpredictable way" (p. 177). By the way, is this true?

I do not find this approach persuasive. Why make the division of profits the master and the maximum profits the slave? Assume they are partners: must they be seriously unharmonious? In our example, the dilemma was that to obtain equal profits, the higher-cost firm must produce more than the lower-cost firm, whereas for joint profit maximization the opposite is true. Why not have the high-cost producer market a part of the low-cost producer's output?—the oil firms have bought gasoline from one another. Why not make unequal contributions to or withdrawals from a Webb-Pomerene association? Why not practice price discrimination and let the higher-cost producer sell the product with the higher profit margin? Why not, for that matter, have the lower-cost firm help the higher-cost firm reduce its costs? Surely one can contrive many devices of varying duration (to meet the requirement of temporal flexibility) and character (to meet the requirement of maintaining the firm's strategic market position) to reconcile the firms' division of profits with maximum profits. Fellner does not show that such a reconciliation is impossible, and in fact does not face the problem squarely.

Nor does he formulate the problem broadly. He pays hardly any attention to the number and size of firms, or to conditions governing the entry of new firms and expansion of rivals, or to differences among firms in the range of products, or to the legal environment. These omissions are not important in Fellner's scheme, because he does not seek quantitative notions on oligopoly price: he is content—I am not—with arguing that oligopoly price is not monopoly price.

The general principles which govern the division of profits among firms (under both oligopoly and bilateral monopoly) are:

> "1. Long-run consequences of violating accepted value judgments (that is, of faring too well); . . .
> "2. The immediate political consequences of a stalemate in the relations between the parties concerned; . . .
> "3. The ability of the parties to take and to inflict losses during the stalemates; . . .
> "4. Toughness in the sense of unwillingness to yield in a range in which the other party is expected to yield if one fails to do so (pp. 24-8)." [Perspicacity would seem a better term than toughness.]

These are purportedly general principles of division of profits, but I must confess to finding them remote from the problem of industrial oligopoly (or for that matter, of bilateral monopoly in the product markets, where the most important factor is the ability of each firm to enter the other's business). They seem most suited to bilateral monopoly in the labor market, and it is in this more limited, but highly important, rôle that I shall briefly discuss them.

I am not prepared to say that this list is mistaken, but surely it is useless. How can the economist join up such considerations with anything objective? Take what is essentially an important example: a union expands its membership from 50 to 100 per cent of the employees in an industry. Will this expansion increase its ability to inflict losses? Yes, because with no non-union sector sources of supply, markets for the industry will be injured more by a strike. No, because without a non-union sector, the struck employers will not lose their relative positions in the industry. Will accepted value judgments change? Yes, a union no longer struggling for control will have less public and governmental support. Yes, but in the opposite direction, because the union can now make heavy assessments for political purposes. The consequences of a stalemate (strike) are now more serious, but which side does this favor? Who gets tougher? Fellner's brief discussion of these principles gives them no operational significance. And yet these factors are also fundamental to his theory of oligopoly, for they provide the divisions of profits which override joint profit maximization.

What, then, is Fellner's contribution? Aside from the many pieces of instructive analysis we naturally expect in any book by him, it consists of a restatement of the problem of oligopoly theory in terms of obstacles to collusion. This restatement may not be ideal, but it should prove more fruitful than the traditional, unmotivated selection of assumptions of oligopoly behavior.

GEORGE J. STIGLER

Columbia University

The Structure of American Industry. By WALTER ADAMS, editor. (New York: Macmillan. 1950. Pp. x, 588. $4.75.)

This book consists of fifteen chapters, each by a different author. The first thirteen chapters cover industries illustrating "various degrees of competition and monopoly," selected so as to give a broad cross-section of agriculture, raw materials, manufacturing, distribution, amusement and transportation. They are also selected to illustrate the influence of varying degrees of market competition, price agreements, government price-support programs, patents and the operation of regulated industries. Chapter 14 by C. D. Edwards is designed to present an over-all picture of the requisites of public policy in a private enterprise economy. Chapter 15, by C. C. Killingsworth, is included "to consider the problem of a government labor policy which would be compatible with a program of encouraging competition in industry" (p. vii).

Each of the first thirteen chapters is written in accordance with the general pattern laid down by the editor. There is an introduction to each chapter by the editor in which he outlines the reason for selecting the industry, its importance in the economy, salient characteristics of its market structure, and the principal issues of public policy raised by the author. Each author then gives: (1) a brief description of the development of the industry; (2) a discussion of market structure and price policy; and (3) proposals for public policy.

Selection of the industries to be included in a "case" book is a matter of individual judgment and is probably limited also by available authors, but to the reviewer, automobiles, petroleum and chain stores deserve a place ahead of the cigarette, tin can and glass container industries. The problems of regulated industries seem to be more effectively illustrated in one of the public utilities, motor transport and railroads than in ocean shipping or air transport, which are dealt with in this book.

In a book of this type, there is bound to be a certain amount of unevenness of presentation, partly because of the different ways in which different authors approach industry studies and partly because of the differences in industries themselves which make uniformity of treatment difficult. The editor, however, has done a very good job of reducing the unevenness to a minimum without compelling any author to sacrifice his point of view. The reviewer, nevertheless wishes that Professor Adams had written the chapter on "Public Policy in a Free Enterprise Economy," contributed by Corwin Edwards. This chapter contains the substance of two lectures previously given by Edwards and sets forth the general point of view familiar to readers of Edwards' works. It does not serve to tie together the industry case studies and is probably too general in nature for readers not already familiar, in considerable detail, with public policy toward industry in this country. (The reviewer suspects that Edwards did not have the opportunity to read the other chapters.)

The chapter on "Labor in a Free Enterprise Economy," by C. C. Killingsworth, is not an analysis of the problems which organized labor presents to a "free enterprise economy" but in this reviewer's opinion is simply an apology for current labor policies and practices. In the present state of affairs, wide differences of opinion are bound to exist on the type of anti-monopoly policy that is needed for organized labor but surely the issue cannot be dismissed by asserting that "The case against labor combinations is built primarily on false analogies between product markets and labor markets, between business enterprises and trade unions" (p. 568). Nor is the issue clarified when the author says: "Centralization of authority [in international unions] cannot be regarded as a necessary evil where the circumstances in a particular industry make it essential to the effectiveness of the union" (p. 554). No light is thrown on the criteria of effectiveness nor who is to be the judge of them. The statement that "the most fundamental assumptions of the theory of competition prove to be quite inapplicable to the observable facts in labor markets" (p. 543), leads the reviewer to ask the question: What theory is to be applied? This query is re-enforced by the statement "that the conventional theory of monopoly cannot be applied to unions" (p. 561).

To this reviewer, the structure of industry means much more than market structures and price policies. It also involves corporate structure, intercorporate relationships, technological conditions of production, costs, scale of production and the geographic structures. Price policies involve more than price stabilization or basing-points. If price policies are to be discussed as a basis for public policy, then it is necessary to analyze the pricing problems of each industry, the conditions which face management in arriving at prices, the reasons for and bases of price discrimination, and the problem of pricing a wide variety of products in various markets.

Some of the chapters illustrate the difficulty of making industry studies in the framework of full-employment theory. This approach leads all too readily to the assumption that maladjustment is solely the result of depression and will not manifest itself under full employment. This does not face the question of the effects of maladjustment on full employment. The reviewer cannot agree with the statement: "when full employment prevails in the non-farm section of the economy, farm prices stay at desirable levels" (p. 106).

A number of the authors appear to take the position that, where oligopoly (defined as fewness of numbers only) prevails, price policies exhibit a fundamental departure from the competitive norm. In fact, however, the pricing pattern seems to be much more complex than this, and most of the industries are characterized by a combination of oligopoly, competition, monopolistic competition, monopoly and non-price competition. Whether these add up to workable competition is not analyzed, nor is the question of public policy developed where fewness of numbers prevails as the result of technology. In short, the question of the kind of public policy to be adopted with regard to industries, such as steel, is not pursued between the two extremes of insuring sufficient numbers to make for effective competition or some form of public price regulation. This seems to by-pass the area where the most perplexing problems of public policy emerge and are likely to remain so long as we have private enterprise in the heavy industries.

The reawakening of interest, today, in the field of industrial organization and public policy is evidenced by the variety of books which is now appearing on the subject and the differences in emphasis, scope, and approach which they exhibit. The divergencies, among authors, in the evaluation of issues and the solutions which are advanced for them are even greater. Consequently, the task of a reviewer is particularly difficult if he wishes to be fair because, by the very nature of the problems faced and the current confusion in the world at large, almost no one can write a book that is adequate for anyone else. If a reviewer cannot take it to task, then it is probably because the issues have not been focussed or a point of view has not been expressed. The *Structure of American Industry* does not fall into this category.

Professor Adams has produced a very useful book. He has brought together a number of industry studies, in very readable form, not readily available elsewhere. For those who like the case method this is the best book available. For others, who prefer a broader and more integrated treatment, it will serve as excellent supplementary reading.

Dudley F. Pegrum

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Land Economics; Agricultural Economics; Economic Geography

Wartime Economic Planning in Agriculture: A Study in the Allocation of Resources. By Bela Gold. (New York: Columbia Univ. Press. 1949. Pp. 594. $6.75.)

For students of economic planning who wish to investigate the operational as well as the theoretical difficulties of this approach to economic order, Professor Gold offers an extraordinarily well documented and highly provocative analysis of the attempt to mobilize agricultural production during the war.

The recent accomplishments of the agricultural sector of the economy may be regarded in at least two ways: (1) During the war, despite a continuing drain of manpower and sustained uncertainty regarding postwar market conditions, American farmers achieved increases in productivity comparable to those of industrial workers, and set an all-time record for volume of production. Or, (2) by reasonable standards of potential production increases, American agriculture fell far short of what was possible, contributed to needless food shortages both during and after the war, and thus rendered the tasks of the war more difficult and the consolidation of the peace uncertain.

Mr. Gold takes the latter view, and he makes a thorough investigation of the factors underlying what he regards as the principal shortcomings of the mobilization effort: the failure to reach conservative goals of potential total output, and more important, the failure to reallocate resources so as to change the composition of output in favor of maximum production of needed nutrients. The purpose of the study is not only to throw light on the inadequacies and errors of specific wartime agricultural policies, but to illustrate weaknesses in planning principles and techniques which may have more general application in the future.

In reviewing the strategic tasks for agricultural mobilization upon our entry into the war, Professor Gold emphasizes the enormous scale of prospective requirements which were then apparent in view of the disorganization of farming and transport in Europe and the Far East. Notwithstanding these needs, production goals assertedly based on potentials tended to be so narrowly conceived as to approach mere estimates of probable results, with little disturbance of existing patterns of farming.

This timidity in setting goals and in vigorously pursuing them was of course grounded in the experiences following World War I and the restrictive practices developed during the 'thirties. It is readily understandable that this set of attitudes toward desirable output levels was exceedingly difficult to reverse. Nevertheless, Professor Gold argues, "Despite the not inconsiderable force of inertia, agricultural resources could have been readily harnessed to new tasks, especially in the environment of emergency adjustments created by war, but only under the spur of an effective program of incentives, aids, controls and even coercions geared to the effectuation of clearly defined goals. The targets did emerge in due course, although in the form of production goals which will be seen later to have been of a rather uncompelling sort. Exhortations, too, were broadcast in abundance. But these were never integrated with production controls, price policies, the allocation of farm machinery and fertilizer, the redistribution of farm labor, the extension of distribution and rationing controls, and the provision of credit—the individual production guides which, taken together, constitute the effective determinant of the scale and composition of output within the limits set by weather."

Instead, after an initial upsurge in total production in 1942, which Mr. Gold attributes in considerable degree to unusually favorable weather, the rate of increase faltered as the results of early misapplication of resources began to manifest themselves. These misapplications and their consequences are described in detail, and the pressures to which administrators responded are frequently recognized. A chapter on "Price Policy, Inflation Control and Mobilization" is particularly valuable for its description of the problem posed by the contradictory aims of price stabilization and incentives to production.

If Professor Gold's strictures appear a counsel of perfection, it should be noted that the pressing desirability of crop reconversions and other forms of resource reallocation had been recognized even before the war. In this respect the strategy of wartime mobilization and the long-range aims of peacetime production have, in the case of agriculture, been remarkably compatible. Our failure under the favorable conditions of wartime zeal and urgency to achieve such changes as were necessary and feasible means that we may have lost one of the invaluable opportunities for accelerated economic readjustment of our generation. Mr. Gold was not alone in pointing this out during the war, but the suggestion was lost in the general feeling that, "We are fighting a war; this is no time for social reforms"—even though in this case the two aims would have been complementary rather than contradictory.

The critical nature of this study need not, as Mr. Gold acknowledges, obscure the fact that substantial production gains were actually made by many farmers during the war, and under handicaps both of resource limitations and inadequate comprehension of needs and prospects. Both of the points of view cited in the early part of this review are correct, and the achievements as well as the shortcomings need to be explained. Striking changes in agricultural production methods have been taking place since the beginning of the war, and that these are not emphasized in this study is no doubt due to the particular objectives of the investigation. Professor Gold's report stands as a valuable contribution to the literature of American planning experience.

James H. Street

Haverford College

Labor

Economics of Labor and Industrial Relations. By Gordon F. Bloom and Herbert R. Northrup. (Philadelphia and Toronto: Blakiston. 1950. Pp. x, 749. $5.00.)

Since the genesis in 1935 of a national policy favorable to collective bargaining and social legislation, popular and academic interest in labor problems has steadily increased. Labor problems, meanwhile, have increased in scope and complexity.

These developments have created a vexing textbook problem. Fifteen or more years ago, nearly all aspects of labor relations could be discussed in a single volume, with adequate attention both to the philosophy of labor problems and to the details, such as the structure and practices of unions, legislation, techniques of personnel management, and collective bargaining practices. The rapid developments of the past decade or so have rendered textbooks quickly out of date. Even more important, the increasing scope and complexity of the field have made it more and more difficult to deal adequately with all phases of labor relations within a single course or single textbook.

Although highly welcome because up-to-date, the new texts in labor economics which have appeared recently[1] continue, in varying degrees, the tradition of attempting to discuss all aspects of labor problems. This encyclopedic approach raises a serious problem. When many topics are covered, each can be treated but briefly; integration of the material becomes difficult; and there is a tendency for the book to become a true encyclopedia rather than an integrated presentation of the important principles of a subject. Students, lost in an overwhelming mass of detail, "fail to see the forest for the trees." In the field of labor relations, this is a serious fault. It is far more important, if a choice must be made (and, in this reviewer's opinion, it is necessary) for students to comprehend the objectives and philosophies of workers and employers, the significance of the conflicts between them, and the nature of the public interest in labor problems than to acquire an extensive but superficial acquaintance with such details as techniques of personnel administration, restrictive union practices, or benefit provisions of unemployment compensation acts. There exists a real need for teachers and textbook writers to re-evaluate the objectives and methods of the typical labor problems course.

The Economics of Labor and Industrial Relations is particularly vulnerable to the above criticism. Despite a lively and challenging introductory chapter, which attempts to "set the stage," the authors fail to furnish the student with an integrated concept of labor problems. The sequence of topics is not particularly coherent or logical. Individual chapters plunge into discussion of detailed policies and practices without relating them to the broader issues and relationships in industrial relations. Thus, with scarcely more than a statement that "A knowledge of union structure is an essential background to the economics of labor," the chapter on union organization takes up the structure of the local union. The chapter entitled "Industrial Jurisprudence" discusses a wide variety of topics, ranging from regulation of apprenticeship to strikes, related only in that, in some sense, they might be considered as non-wage aspects of collective bargaining. Particularly unhappy is a miscellany of statistical data presented as a separate chapter under the heading "Basic Labor Statistics." In the labor field there is fortunately an abundance of good statistical data, but statistics are useful only in so far as they are discussed so as to bring out their significance. Here statistics on various topics are summarily presented with little or no discussion. Furthermore, they are not even up to date, the latest data being for 1946 despite the availability of current information and its value in light of postwar changes. As is common with most labor economics texts, the chapters on protective labor legislation and social security present a compendium of details on eligibility requirements, coverage, benefits, and the like rather than a basic consideration of the objectives and problems in such legislation.

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[1] Among the new or revised texts recently published are: Philip Taft, *Economics and Problems of Labor* (New York, Stackpole and Heck, 1948); Joseph Shister, *Economics of the Labor Market* (Chicago, J. B. Lippincott, 1949); Lloyd Reynolds, *Labor Economics and Labor Relations* (New York, Prentice-Hall, 1949); Dale Yoder, *Manpower Economics and Labor Problems* (New York, McGraw-Hill, 1950); Orme Phelps, *Introduction to Labor Economics* (New York, McGraw-Hill, 1950).

Despite the above faults, however, the book is a highly valuable contribution to the literature of labor relations, for its provides the keenest and most thorough analysis of wage and employment problems through use of marginal productivity and aggregative theory that has yet appeared in a textbook. Authors of labor texts generally have dismissed the value of economic theory as an analytical tool. Messrs. Bloom and Northrup furnish striking proof of the applicability and value of economic theory, skillfully used, in analysis of labor problems. Problems of wage determination in the individual firm, industry, and locality are adroitly discussed in terms of marginal productivity theory under conditions of imperfect competition. A convincing explanation is furnished, for example, for the existence of considerable differences in wages although the wage equals the full marginal revenue product of labor in each particular employment. Especially challenging is an exploration of the economic implications of union make-work rules and such devices as the guaranteed annual wage. Problems of wage policy and employment are analyzed with cogency in terms of aggregative (Keynesian) theory.

It is inconceivable that any reader would agree with all of the opinions expressed by the authors, especially considering the controversial nature of labor relations. Most readers will probably feel, however, that the authors have used careful reasoning in arriving at their conclusions and have made sound judgments. There is perhaps too much emphasis upon the sins of labor and insufficient attention to the deficiencies of management. Inadequate attention has been paid to the psychological and sociological aspects of labor problems, such as inter-group relationships, industrial conflict, grievance procedures. Frequently, the economic analysis tends to rest too largely upon unsubstantiated hypothesis. By and large, however, most economists should find the analysis and conclusions acceptable.

Although it is the authors' idea that the text is suitable for both beginning and advanced students, the analysis is both too extensive and too difficult for the usual undergraduate course. The rôle of this text is definitely at the advanced level, for which it is admirably suited. If the book is used at the graduate level, its lack of integration, criticized earlier, loses some of its importance, since this matter is of less significance with advanced students.

It is sincerely to be hoped that the excellent use of economic theory by Messrs. Bloom and Northrup in this volume will inspire other labor economists to abandon their distrust of theory in favor of intelligent application of the valuable tools of analysis it provides.

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Unions Before the Bar. By ELIAS LIEBERMAN. (New York: Harper & Brothers. 1950. Pp. x, 371. $5.00.)

Mr. Elias Lieberman, former garment worker and union official and now a union labor attorney, has presented a highly readable history of American labor law through the medium of the leading labor cases, from the Philadelphia Cordwainers to the 1949 Supreme Court decisions.

Using a narrative and interesting style, Mr. Lieberman traces the legal status of unions from the early days of suppression through the periods of toleration and encouragement and once again to the present so-called neutrality stage. Although Mr. Lieberman is frankly and openly a union partisan, he has included cases which bear on the seamy side of trade unionism. His account of Steele v. Louisville and Nashville Railroad ("All Within The Union Are Brethren") is an excellent presentation of the unsavory conduct of the Brotherhood of Locomotive Firemen and Enginemen's attempt to drive Negro firemen off southern railroads. The problem of the closed shop under the Wagner Act is presented through Wallace Corporation v. the NLRB ("There Are No Rights Without Duties"). Union-management collusion to blockade a market is set forth through Allen Bradley Company v. Local Union No. 3 ("Let Unions Beware of the Company They Keep"). And John L. Lewis' legal bout with Judge Goldsborough is fully discussed ("The High Cost of Contempt").

Mr. Lieberman's book has a balance and perspective which is not often found from the pen of those who are active in labor disputes. Although he writes that the Taft-Hartley Act "is a clear manifestation of the power and hostility of the industrial group and of some public men toward labor unions," he is quick to point out that in this era which produced Taft-Hartley unions have become and remained "big and powerful, capable of seriously challenging the traditionally dominant industrialists" (p. 349).

Moreover, Mr. Lieberman states: "But the acquisition of power in a democracy imposes responsibilities. The balancing of power by responsibility is basic to the existence of a democratic system. All actions—'internal' as well as 'external'—of any powerful group within a democratic society are properly subject to public accounting. The actions of powerful groups cannot be said to be merely of private concern or of 'no concern' to society. This principle applies to all powerful groups. Labor now being among such groups, to what extent will it undertake to share in 'social responsibility' to the community?" (pp. 349-350).

For the first time, those who wish an introduction to the past and present legal status of unions and of various union practices and policies have at their disposal a book that is well written and easily understood. *Unions Before the Bar* deserves all the readers it can get.

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Population; Social Welfare and Living Standards

The Cost and Financing of Social Security. By Lewis Meriam and Karl Schlotterbeck. With a Chapter on "Veterans' Benefits" by Mildred Maroney. (Washington: Brookings Institution. 1950. Pp. ix, 193. $3.00.)

Interest aroused by recent proposals to expand social security in this country and others has produced a considerable volume of literature which has added to our knowledge and understanding of the field. The book under review has been written expressly in response to the changes in the American system recommended in H.R. 2893 and H.R. 6000. It is with the first mentioned bill, sponsored by the Truman Administration, that the book is chiefly concerned. "The objective of the study," as stated on the cover jacket, "is to focus attention on the magnitude of the expanding costs, and the problems involved in financing them, and to raise questions as to whether a safer method and better system could readily be devised."

The subject matter of the book is divided into three parts: Part I, Major Social Security Problems, describes the features of the American system; Part II, Special Groups and Programs, deals with veterans' benefits and private pension plans; and Part III, Analysis of the Over-All Security Program, is a statement of conclusions and recommendations. Of the factual material presented, the chapters on veterans' benefits and private pension plans are particularly timely. The issues relating to private pension plans are raised but not argued to a conclusion. The non-technical reader will find useful the data on costs which the authors have summarized from the reports of actuarial experts. The discussion of the economic and fiscal aspects of reserve financing of old age and survivors insurance dispels effectively, but probably not finally, the confusion which has persisted on that subject.

The recommendations which the authors make for changing the established pattern of social security follow a formula which has become familiar in Dr. Meriam's earlier studies on social security, published by the Brookings Institution (*Relief and Social Security* and *The Issue of Compulsory Health Insurance*). There is recognition of the fact that the practices of a parochial and punitive poor law are no longer acceptable and that, for better or worse, public provision must be made for protection against want, whatever its cause. The issue to be decided, then, is what kind of a system for achieving this end shall be adopted. The authors would abandon the so-called "insurance" plan now in operation with its presumption that the purpose of social security is to insure against loss of earnings which arise by reason of unemployment, age or other specific contingencies. They favor a system which would provide a "floor of protection" by assuring a standard, minimum purchasing power, preferably with eligibility determined by a test of need. If this is politically unacceptable, they recommend the payment of a flat minimum amount without reference to other available resources. Maintenance of income above the minimum would not be the responsibility of government. If people desire greater protection they can provide for it through such measures as private saving, private insurance, group insurance, industrial pensions, etc.

> Our recommendation would be that benefits should not exceed the amount required to provide a minimum health and decency standard and that if persons desire more than that they should strive to obtain it through voluntary methods. To us the payment of benefits only to those who do not have the necessaries and only to the extent they lack them seems to preserve to maximum extent personal freedom and initiative. If government reports and investigations to determine resources are deemed too objectionable to be politically acceptable, then a flat uniform benefit would be the safest system in the present uncertain world.

To finance the costs of the program the authors propose a universal, flat-rate personal income tax, earmarked for social security, and the frank adoption of a pay-as-you-go policy.

> Immediate assumption of full load, payment of benefits no greater than are necessary to give full protection against need, and financing through a universal flat-rate personal income tax earmarked for social security appears to be the best system for use in the present uncertain times. Brought face to face with full load costs to be met annually, the people will be in a better position than they are now to determine whether individuals with personal income sufficient to protect them from need should be paid a benefit equaling that given to individuals who without the benefit would be in need. Decisions on such vital matters should be arrived at with full knowledge of the size of the true load and the real costs of the system.

The argument of the book is set forth clearly and concisely. Its great merit is that instead of evading the problems of social security finance by projecting them into the future, it concentrates attention on the costs of a fully developed program as of the present. The discussion of the current situation highlights the subterfuges, anomalies and limitations which are characteristic of social security programs in their early stages, and from which ours has not escaped. If we are to be realistic, we must view the present arrangements as first attempts to meet problems of income maintenance, not a final solution. Proposals for change are to be expected. They should be analyzed in terms of their probable results in practice.

The conclusions reached in the Brookings' study prompt one to examine the purposes which a system of social security is designed to fulfill. Social security systems have been brought into existence because private incomes are low and unstable. What the people who are served by social security expect is the assurance of protection on terms which they regard as self-respecting when income fails for reasons largely beyond their control. The protection may be a flat-rate benefit as provided in the English scheme or graduated benefits as in the American system. The essential requirements are (a) that benefits be adequate; (b) that they be paid according to a dependable schedule; and (c) that if differential grants are paid a more acceptable basis be found than that existing in the assistance laws of many states. The drive for social insurance has been supported by a growing realization of the inappropriateness of traditional poor law practices in the modern world. The means test which assesses the value of property and income, legal liability of relatives, the law of settlement—are all difficult to enforce and frequently self-defeating. The basic difficulty with the administration of a test of need is not that it encourages chiselers or that it is a ready-made tool for local politicians. What the recent controversy over assistance cuts has brought out is (a) the unreliable nature of a system of payments which depends for its financing on the unrestricted vote of a legislative body; and (b) the personal hardship and injustice that are inevitable when grants are cut below a reasonable level. Experience demonstrates that in practice the right to income-maintenance payments is more secure in an insurance system than in an assistance program. In large part this is due to the fact that in the former the benefit scale is laid down in the law and therefore is not easily changed, while in the latter there is no statutory commitment to a definite minimum. The result is that the amounts families on assistance receive is not determined by their need in any meaningful sense, but by the appropriation voted currently by a legislative body. Even in the most progressive states where the trend in public assistance is toward a more liberal and impersonal definition of the test of need, this basic uncertainty persists.

Preoccupation with the precarious nature of assistance allowances, however, should not blind one to the limitations of rigidly defined benefit scales. Insurance benefits have the political advantage of being definitely set, and the correlative economic disadvantage of being insensitive to changes in the price level. To achieve flexibility they should be geared to a cost-of-living index. Some variation in benefits is also required to take account of special needs, *e.g.*, persons requiring special diets, living in areas of abnormally high rents, etc. Differential grants therefore are likely to have a rôle (though a minor one) in a comprehensive program of social insurance.

The issue over the test of need which the authors raise, however, is not the central point of their argument. Their chief concern, so far as benefits are concerned, is that they be held to a minimum amount so that costs may be kept within bounds and that scope may be preserved for voluntary provision. Their second choice is for a flat, uniform benefit payable irrespective of need. There is a good deal to be said for the principle of uniform provision in nation-wide programs. The British have used it with good effect. Universal, flat benefits are more costly than those based on need, but they have the advantages of being simpler to administer and of eliminating the inquisitional and discretionary features of the means test. They satisfy the democratic preference for treating everybody alike, despite the fact that individual resources may vary widely so that the effect is to redistribute income regressively. But in a country such as ours, where both the cost and the standard of living show significant geographical variations, the amount would have to be adjusted to the cost of living in different places.

The type of benefit formula toward which the authors are least inclined is that which has been adopted in the United States; *i.e.*, one that is designed to insure against wage loss. They are particularly apprehensive of the enlarged scope that is contemplated for social security in H.R. 2893. Their objection rests on two grounds: the scope for voluntary provision; and the cost. The real issue here is the relative merits of a system in which government undertakes the full responsibility of organizing protection in a single system, compared with one in which the field is divided between a public compulsory system and voluntary, private insurance. Voluntary systems, when left to individual initiative have had disappointingly few subscribers in those countries where they have been tried; voluntary systems organized by employers typically give insufficient guarantees of security and tend to bind the employee to the firm and in some cases to the union. If widely developed and adequately funded, voluntary insurance schemes divert large amounts of savings away from investment in venture capital into safer and less productive channels. This may bring about results as unwelcome as those which the authors predict from the expanded social insurance plan. If insurance against the uncertainties of private income is what people want and are willing to pay for, the costs will be high. The question is, are the results desired attained more efficiently when the government takes over a major part of the field, or when the government confines its sphere to providing a "floor of protection" and leaves the rest to private insurance companies? The authors do not squarely face the far-reaching economic issues raised by the growth of industrial pension plans.

A word remains to be said about the methods of financing benefit payments. The authors recommend that the cost of social security be met by a flat addition to income tax. Such a tax has certain advantages over pay-roll taxes, but it should be pointed out that unless supplemented by a subsidy from general revenues, a flat addition to income tax is likely to be regressive and inflexible. The implications of social security finance for income distribution and cycle control have been receiving special attention in recent literature. As a system of social security assumes full proportions, the fractions of the national income collected in taxes and paid out to beneficiaries rise to significant proportions and social security finance assumes functional aspects. Social security cannot be regarded independently of its effect upon the calculations of entrepeneurs and investors and the behavior of workers. Because of the difficulties inherent in the measurement of the incidence of taxes and the effects on incentives, these aspects of social security have eluded quantitative investigation. The distributive aspects of the problem are those which have caught the attention of both voters and legislators. There is, however, a growing awareness of the significance of social security financing in the total economy. What its rôle should be is a matter of dispute. The authors' proposal to finance the cost of social security by a flat addition to personal income tax follows the principle of fixed tax liabilities. Recent discussions among economists give wide circulation to the idea of using social security taxes and benefits as built-in instruments of compensatory control. With the present undeveloped stage of aggregative economics and business forecasting we know too little to frame policies for dealing with fluctuations which depend for their success upon reliable prediction. But for designing measures to check and reverse inflationary and deflationary tendencies we have considerable understanding, and among these flexible taxes and compensatory spending appear to offer useful tools for a policy of full employment. Social security finance needs to be explored from this angle.

The argument of the preceding paragraphs may be briefly summarized. Social security is bound to be costly; if it gives adequate protection, it will necessarily affect personal income distribution; perhaps it may prove to be useful in averting a threatened depression. In the present temper of public opinion it is not likely to be pushed back toward an assistance status.

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NOTES

SIXTY-THIRD ANNUAL MEETING OF THE AMERICAN ECONOMIC ASSOCIATION

Palmer House, Chicago, Illinois, December 27-30, 1950

As this issue of the *Review* goes to press, plans for the program for 1950 are hardly at a stage to warrant publication of a partial list of specific topics, hours and speakers; but the main content is assured by acceptances received, especially for main papers. Even when this appears in print, there may still be enough fluidity to admit incorporation of papers, especially discussion papers, on some of the topics, if members will submit suggestions promptly to the president. A provisional program will, as usual, be mailed to the members, with the ballot for officers, about November first. It may be noted that with the formation of more and more branch, or special-interest, associations within the field of the AMERICAN ECONOMIC ASSOCIATION, the president or his helpers have less and less control over the program (subject to potential participants!) and it becomes increasingly a product of negotiation, if not of entirely independent action, on the part of several organizations and groups. From the standpoint of the AMERICAN ECONOMIC ASSOCIATION itself, effort is being exerted to have the 1950 meeting concentrate on the relations between private initiative and political action and on international economic relations. In the latter area especial emphasis is placed on relations between the more and the less "advanced."

Fields in which from one to several program sessions will be held, in part jointly with other organizations, are listed below. Other topics are being developed by these kindred groups, and will in some cases be jointly sponsored. The Econometric Society should be especially mentioned for numerous sessions of the most general type and appeal, with others that are more technical; and the American Statistical Society, Section on Economic and Business Statistics, has an extensive program fitting the same description.

I. The Position of the Consumer, His Freedom and "Sovereignty"
II. Health and Other Hazards as a Political Problem
III. Housing as a Political Problem
IV. Political Problems of Agriculture
V. Political Action for Economic Stability (Report on "The Problem of Economic Instability" by a Subcommittee of the Committee on Public Issues of the AMERICAN ECONOMIC ASSOCIATION published in this issue of the *Review*)
VI. Action to Curb Monopoly
VII. Economic Problems of War
VIII. Problems in Taxation and Fiscal Policy (with American Finance Association)
IX. Foreign Economic Relations, Theory and Policy
X. Behind the Iron Curtain, Conditions and Meanings
XI. Wealth and Poverty and World Order; Facts and Causes of Contrasts; Motive, Obstacle and Method in Amelioration
Papers on Differential Economic Growth
XII. Economic Theory; Capital, from Accounting and General Analysis Points of View; Institutional Economics
XIII. Problems of Transportation and Public Utilities
XIV. Who Wants Free Competition? Business? Labor? The Farmer?
Business Meeting; Reports on Activities.

FACULTY RESEARCH FELLOWSHIPS

Beginning with the academic year 1950-51, the Social Science Research Council will offer a five-year program of Faculty Research Fellowships designed to enable younger members of social science faculties of universities and colleges, who have superior qualifications for research, to devote a substantial part of their time to self-directed research early in their professional careers, while remaining in residence at their own institutions and carrying on a restricted amount of teaching. Appointments will normally be made for three-year terms, during which fellows will devote at least half of their working time to their own research. Inquiries and requests for forms for preliminary nominations may be addressed to Elbridge Sibley, Executive Associate, Social Science Research Council, 726 Jackson Place N.W., Washington 6, D.C.

PUBLICATIONS

The *Jahrbücher für Nationalökonomie und Statistik* has been revived under the editorship of Professor Friedrich Lütge of Munich and Professor Erich Preiser of Heidelberg. The publisher is Piscator-Verlag, Stuttgart, Germany.

The journal *Weltwirtschaftliches Archiv*, publication of which was discontinued in March, 1945, has been reissued by the Institut für Weltwirtschaft, of the University of Kiel, under the editorship of Professor Fritz Baade. Summaries of articles appear in English, French, Spanish and Italian.

Death

Charles G. Woodward, February 1, 1950.

Appointments and Resignations

Ralph S. Alexander has been promoted to professor of marketing, Graduate School of Business, Columbia University.

William R. Allen has been appointed assistant instructor in economics at Duke University.

Carl A. Anderson has been promoted from instructor to assistant professor of accounting at the University of Florida.

J. D. Anderson has been promoted from instructor to assistant professor of economics at the University of Florida.

Kenneth J. Arrow has been promoted to associate professor of economics at Stanford University.

Edward C. Atwood, Jr., has been appointed instructor in economics at Denison University.

Nathan A. Baily has been promoted to associate professor of economics at the American University.

E. M. Ballon has been promoted to assistant professor of business administration at the University of Toronto.

Ernest A. Beasley has been appointed instructor in the School of Business Administration, University of Miami.

V. W. Bladen has been named director of the new Institute of Business Administration at the University of Toronto.

Ralph H. Blodgett, formerly of the University of Illinois, has joined the staff of the University of Florida as professor of economics.

Arthur I. Bloomfield, chief of the Balance of Payments Division of the Federal Reserve Bank of New York spent the early part of this year in Seoul, Korea, where he served as advisor to the Bank of Korea and the Ministry of Finance.

Philip S. Borden has been appointed instructor in marketing in the School of Economics and Business, State College of Washington.

Robert L. Bornholdt has joined the research department of the Federal Reserve Bank of St. Louis.

George H. Borts has been appointed assistant professor of economics at Brown University for the current academic year.

Raymond T. Bowman has been promoted to professor of economics at the Wharton School of Finance and Commerce.

Samuel J. Brandenburg, who has been chairman of the department of economics and sociology at Clark University since 1923, has retired from active service.

William H. Bright has been appointed instructor in business administration at Los Angeles State College.

Paul F. Brissenden will be on leave from the Graduate School of Business, Columbia University, in the winter session to serve as visiting lecturer at the University of Hawaii.

Henry D. Brohm has been promoted from the rank of associate professor to professor in the department of business organization and operation, University of Florida.

Martin Bronfenbrenner has resumed teaching at the University of Wisconsin after having been on leave as economist with the Shoup Taxation Mission in Japan.

Harry G. Brown has been named professor emeritus of economics upon retirement from teaching at the University of Missouri.

John T. Cannon has been promoted from instructor to assistant professor in the School of Business, University of Kansas.

D. D. Carroll, who has resigned as dean of the School of Commerce, University of North Carolina is continuing his work as professor of economics.

Thomas H. Carroll, of Syracuse University, has accepted the position as dean of the School of Business Administration at the University of North Carolina.

W. Ellison Chalmers has been named director of the University of Illinois Institute of Labor and Industrial Relations.

Jay F. Christ retired in June as associate professor of business law from the School of Business, University of Chicago.

Russell L. Chrysler, formerly of the University of Cincinnati, has been appointed associate professor of marketing at Los Angeles State College.

Paul C. Cohen has resigned from Northwestern University to take a position with the Department of Commerce.

Paul W. Cook, of the University of Chicago, has accepted an appointment as instructor in economics at Northwestern University.

Edward K. Cratsley has resigned from St. Lawrence University to be vice president and professor of economics at Swarthmore College.

Calvin Crumbaker retired in June as head of the department of economics at the University of Oregon.

Kenneth J. Curran has been appointed professor of economics and business administration and head of the department at Colorado College.

A. W. Currie, associate professor of political economy, has been appointed associate professor of business administration, University of Toronto.

James F. Cusick is on sabbatical leave from Dartmouth College in the current semester.

Randle E. Dahl has been appointed professor of industrial relations in the School of Business Administration at Fenn College.

Ernest Dale has been appointed assistant professor of industrial relations, Graduate School of Business, Columbia University.

Maurice E. Dance has been appointed assistant professor of economics and labor at Los Angeles State College.

Marion R. Daugherty has been appointed assistant professor of economics at Loyola University, Chicago.

Donald J. Dewey has been appointed assistant professor of economics at Duke University.

Arch M. Dooley has been appointed lecturer in business administration at the University of North Carolina.

Laurence P. Dowd, of the University of Michigan, has been appointed assistant professor of economics at the University of Washington.

Robert Doyle has been appointed instructor in economics at Loyola University, Chicago.

Edgar O. Edwards has been appointed instructor in economics at Princeton University.

William J. Fellner, of the University of California, is visiting lecturer in economics at Harvard Universty durng the current academc year.

John C. Fetzer, of Rutgers University, has been appointed professor of economics and chairman of the department of economics in the School of Business Administration, University of Miami.

Paul Fisher, of Dartmouth College, spent the summer in Germany making a study of Work's Councils for the Department of State and is continuing his investigations in France under a grant from the Social Science Research Council.

Joe S. Floyd, Jr., of the University of North Carolina, has been appointed assistant professor of finance in the department of business organization and operation at the University of Florida.

Sylvester Frizol has been appointed associate professor of economics at Loyola University, Chicago.

Donald A. Garrett has been appointed associate professor of economics at the University of Arkansas.

Cornelius W. Gillam has been appointed instructor in business law in the School of Business of the University of Chicago.

Marion H. Gillim, of Mount Holyoke College, is on leave the current academic year to serve with the Census of the Americas Division of the Bureau of Labor Statistics.

David Green, Jr., has been appointed instructor in business administration in the School of Business, University of Chicago.

George C. Grosscup, Jr., of the University of Vermont, has accepted an appointment as associate professor of business, Miami University.

John G. Gurley has been appointed instructor in economics at Princeton University.

Warren J. Gustus, of Brown University, has accepted a position as instructor in economics at Northwestern University.

Bernard F. Haley, of Stanford University, will spend the fall and winter travelling in Europe.

Donald J. Hart has resigned as associate professor of economics at Carroll College to become dean of the School of Business Administration at the University of Idaho.

Penelope C. Hartland has been granted a leave of absence from Brown University for the current year to accept a research appointment at the National Bureau of Economic Research.

Clarence Heer, of the University of North Carolina, was on leave during the winter of 1950 to serve as budgetary consultant with the Economic Cooperation Administration in Korea.

S. G. Hennessey has been promoted from assistant professor of political economy to associate professor of business administration at the University of Toronto.

William Heuson has been promoted to assistant professor of finance in the School of Business Administration, University of Miami.

Donald Holm has been appointed assistant professor of management at the University of Missouri.

William C. Hood has been appointed assistant professor of political economy at the University of Toronto.

Rate Howell has been promoted from instructor to assistant professor of business law in the School of Economics and Business, State College of Washington.

D. D. Humphrey, of Duke University will be on leave the second semester of the current academic year to direct a study for the Twentieth Century Fund, dealing with the role of United States Imports in the Dollar Gap. Calvin B. Hoover will serve as co-director of this study.

Robert M. James has been appointed assistant professor of accounting at the University of North Carolina.

John E. Jeuck has been promoted from assistant professor to associate professor of marketing in the School of Business, University of Chicago.

Robert W. Johnson has been named lecturer in finance in the School of Business Administration, University of Buffalo.

Victor S. Karabasz has resigned from the Wharton School of Finance and Commerce to join the staff of the School of Business Administration, University of Miami.

George Katona has been promoted to professor of economics at the University of Michigan.

M. Thomas Kennedy has been promoted from assistant professor to associate professor of industry at the Wharton School of Finance and Commerce.

Harry T. Koplin has been appointed instructor in economics at the University of Oregon.

Juanita M. Kreps has resigned as assistant professor of economics at Denison University.

Herman A. Lebovitz is director of the division of business administration in the McKenzie School, Chattanooga.

Wayne Leeman has been appointed assistant professor of economics at the University of Missouri.

Don D. Lescohier is on leave from the University of Wisconsin in the current term for research study.

Harold M. Levinson has been promoted to the rank of assistant professor of economics at the University of Michigan.

Marvin M. Lillie has been appointed lecturer in accounting in the School of Business Administration, University of Buffalo.

John M. Lishan has been appointed instructor in economics at Brown University.

Ta-Chung Liu has been reappointed visiting lecturer in mathematical economic theory at the Johns Hopkins University for the current academic year.

K. C. Livingston has been appointed lecturer in business administration at the University of Toronto.

James H. Lorie has been promoted from assistant professor to associate professor of marketing in the School of Business, University of Chicago.

Rodney L. Luther, of Cornell University, has been appointed associate professor in the division of business and economics at Los Angeles State College.

C. Ward Macy, of Coe College, has been appointed chairman of the department of economics at the University of Oregon.

George P. Martin has been appointed instructor in finance at the University of Southern California at Los Angeles.

Edward S. Mason succeeds the late Joseph A. Schumpeter as George F. Baker professor of economics at Harvard University.

Leonard G. Mathy, of the University of Washington, has been appointed associate professor of economics at Los Angeles State College.

C. A. Matthews has been promoted from assistant professor to associate professor of finance at the University of Florida.

Arthur D. Maxwell has been promoted from assistant professor to associate professor of accounting, Wharton School of Finance and Commerce.

Stephen L. McDonald has been appointed assistant professor of economics at the University of Texas.

F. Eugene Melder has been appointed associate professor of economics and sociology at Clark University.

Gilbert M. Mellin has resigned from the University of Pittsburgh to accept a position as assistant professor of economics at Tulane University.

Raymond F. Mikesell, of the University of Virginia, has joined the staff of Gordon Gray, special assistant to the President, to prepare recommendations relating to the adjustment of the balance of payments of the United States.

John P. Miller has been promoted to the rank of professor of economics at Yale University.

Grant C. Moon, of the University of Kansas, has joined the staff of the School of Business, University of South Dakota, as assistant professor of marketing.

Donald A. Moore has resigned from Brown University to accept an appointment at Michigan State College.

Leon N. Moses, of Harvard University, is instructor in economics at Northwestern University.

E. W. Mounce has been promoted from associate professor to professor of law and labor relations, College of Business and Public Administration at the University of Maryland.

Austin S. Murphy, formerly of the New York State Department of Labor, has become dean of the School of Business Administration of Seton Hall College.

S. G. Murray, formerly lecturer in political economy, has been appointed lecturer in business administration at the University of Toronto.

Richard A. Musgrave has been promoted to the rank of professor of economics at the University of Michigan.

Paul E. Nelson, Jr., has been appointed assistant professor of economics at Denison University.

William H. Nicholls, of Vanderbilt University, spent the summer in Turkey as economist to the Barker Mission, sponsored by the International Bank for Reconstruction and Development.

John C. Norby, of the University of Minnesota, has been appointed assistant professor of economics at Los Angeles State College.

Paul H. Nystrom, who was made professor emeritus in June in the Graduate School of Business, Columbia University, is special lecturer in marketing in the current academic year.

Ralph H. Oakes, formerly of Marquette University, is now professor of marketing at Loyola University of the South.

John T. O'Neil, associate professor of finance, has been appointed assistant dean of the School of Business, University of North Carolina.

Richard N. Owens, of George Washington University, is visiting professor at the University of California, Berkeley, in the current academic year.

Andreas G. Papandreou, of the University of Minnesota, has accepted an appointment as associate professor of economics at Northwestern University.

John Parkany has been appointed instructor in economics at Loyola University, Chicago.

Harold C. Passner has been appointed assistant professor of economics at Princeton University.

Ernest M. Patterson, who has retired from teaching at the Wharton School of Finance and Commerce, has been named professor emeritus of economics.

Norman Pauling, of the University of Texas, has been awarded a Fulbright grant for a year's study in New Zealand.

Bernard D. Perkins has been promoted from assistant professor to associate professor of accounting at the University of South Dakota.

François J. Perroux has been appointed exchange professor from France at Harvard University for the first half of the current academic year.

Robert J. Pogson, of the University of Texas, has accepted a position in the department of economics of the Autonomous University of El Salvador.

Gerald F. Price has resigned from the University of Pittsburgh to accept an appointment as instructor at the University of Colorado.

Daniel W. Raaf has resigned from Brown University to join the staff of the University of Washington.

Benjamin U. Ratchford is deputy chief of the economic mission sent to Turkey under the sponsorship of the International Bank for Reconstruction and Development.

Stanley Reiter, formerly of the University of Chicago, has been appointed instructor in economics at Stanford University.

Robert A. Rennie, of the Johns Hopkins University, was a member of the Barker Mission sent to Turkey by the International Bank for Reconstruction and Development.

John E. Reynolds has taken a position with the Bank for International Settlements in Basle, Switzerland.

Edward Rubin has been appointed lecturer in business law at Los Angeles State College.

J. C. Sawatsky has been appointed assistant professor of business administration at the University of Toronto.

Glenn A. Scott has been appointed professor of business statistics and chairman of the new department of business statistics at the University of Miami.

Thorsten Sellin is on leave of absence from the Wharton School of Finance and Commerce to serve as secretary-general of the International Penal and Penitentiary Commission, Bern, Switzerland.

Floyd R. Simpson, of Carleton College, is professor of economics and head of the division of business and economics at Los Angeles State College.

David W. Slater, formerly of the University of Chicago, has been appointed instructor in economics at Stanford University.

Harlan M. Smith has resigned from Brown University to become assistant professor in the School of Business Administration, University of Minnesota.

R. Elberton Smith has resigned from Northwestern University to accept an assignment with the War Department in Washington, D.C.

William P. Snavely has been promoted to assistant professor of economics at the University of Connecticut.

John P. Stanford has been appointed instructor in insurance and finance in the School of Economics and Business, the State College of Washington.

Harry Stark has been appointed lecturer in economics in the School of Business Administration of the University of Miami.

George J. Staubus has been appointed instructor in business administration in the School of Business of the University of Chicago.

M. L. Stokes has resigned from Wilson College to become chairman of the department of economics and political science at Gettysburg College.

Paul J. Strayer has been promoted to associate professor of economics at Princeton University.

Daniel B. Suits has been promoted to assistant professor of economics at the University of Michigan.

Paul E. Sultan has been appointed lecturer in industrial relations in the School of Business Administration, University of Buffalo.

Boris C. Swerling has resigned from Brown University to accept an appointment at the Food Research Institute, Stanford University.

Joseph R. Tarbet has been promoted from instructor to assistant professor of accounting in the School of Economics and Business, State College of Washington.

Virginia G. Tauchar has been appointed assistant professor of economics at Mount Holyoke College.

George C. Thompson has been promoted to assistant professor of accounting in the Graduate School of Business, Columbia University.

W. S. Thomson has been appointed assistant professor in business administration at the University of Toronto.

James Tobin has been appointed associate professor of economics at Yale University.

F. C. Toombs has been appointed special lecturer in business administration at the University of Toronto.

Robert H. Tucker has retired from active teaching and has been appointed professor of economics emeritus at Washington and Lee University.

Eugene Upshaw has been appointed coordinator of personnel relations in the College of Business Administration, University of Tennessee.

Jacob Viner has been named Walker professor of economics and international finance at Princeton University.

Arthur Volk has been promoted from instructor to professor of accounting at the University of South Dakota.

Charles W. Voris has been appointed instructor in business organization in the School of Economics and Business, State College of Washington.

Leonard L. Watkins, professor of economics at the University of Michigan, has been granted a leave of absence for the second semester of the current academic year.

Bernard D. Weinryb is professor in Middle Eastern economics at the Institute for the Middle East, Dropsie College, Philadelphia, and lecturer in economic history at Brooklyn College.

Sidney Weintraub, of St. John's University, Brooklyn, N.Y., has been appointed visiting professor of economics at the Wharton School of Finance and Commerce.

Charles A. Welsh is on leave from American University until September for a special assignment at the Library of Congress.

Samuel G. Wennberg, of the University of Missouri, has been awarded a Fulbright Fellowship and will lecture in the School of Business at the University of Bergen, Norway.

Robert B. Wentworth has been appointed assistant professor of marketing in the College of Business Administration, University of Tennessee.

Lawrence L. Werboff, of Stanford University, has accepted an appointment as instructor in economics at Northwestern University.

A. M. Whitehill, Jr., of the University of North Carolina, has been awarded a Fulbright appointment as visiting lecturer at the University of Bergen, Norway.

Arthur A. Wichmann, of Northwestern University, has accepted a position as associate professor of economics at the University of Wichita.

Walter W. Wilcox has resigned from the University of Wisconsin to be senior specialist in agriculture on the staff of the Legislative Reference Service of the Library of Congress.

Margaret S. Wilson has been appointed instructor in economics and sociology at Mount Holyoke College.

Robert L. Winestone, of Northwestern University, has accepted an appointment as assistant professor of economics at Coe College.

Howard W. Wissner, formerly of Alabama Polytechnic Institute, has joined the faculty of Tulane University as associate professor of economics.

A. M. Woodruff, Jr., has been appointed professor of real estate at the University of Pittsburgh.

John W. Wyatt has been promoted from instructor to assistant professor of business law at the University of Florida.

Reuben A. Zubrow, formerly of Indiana University, is an assistant professor of economics at the University of Colorado.

FORTY-SEVENTH LIST OF DOCTORAL DISSERTATIONS IN POLITICAL ECONOMY IN PROGRESS IN AMERICAN UNIVERSITIES AND COLLEGES

The first list of this kind was dated January 1, 1904, and was sent to all members, but not regularly bound in the publications. A notation as to the earlier lists, extending from 1905 to 1927, may be found in the *Review* for September, 1927, page 574. Annual lists thereafter are to be found in the September number of the *Review* for each year.

The present list specifies doctoral degrees conferred, doctoral dissertations completed and accepted by the various universities, and theses still in preparation. The last date given is the probable date of completion. In cases where the publishers of completed dissertations were given, this information has been reported.

The list represents the status of the several theses on June 15, 1950, except for a few items later reported as completed or published.

Economic Theory; General Economics

Degrees Conferred

Kenneth J. Arrow, Ph.D., Columbia, 1950. Measurement of economic stability.

Robert M. Biggs, Ph.D., Michigan, 1950. The classical theory of capital: its origins, development, and modifications.

Howard A. Bourne, Ph.D., Chicago, 1949. The economic concets of Emil Brunner and Reinhold Niebuhr.

John A. Buttrick, Ph.D., Yale, 1950. Criteria for investment policy in a democratic state.

Alfred F. Chalk, Ph.D., Texas, 1950. Impact of natural law theories on the formation of political economy.

Robert Dorfman, Ph.D., California, 1950. Applications of linear programming to the theory of the firm.

Wayne A. Leeman, Ph.D., Wisconsin, 1950. Methodology, psychology, and valuation in economic theory.

John V. Machell, Jr., Ph.D., Illinois, 1950. The Christian church's critique of contemporary capitalism: an analysis in the light of economic theory.

Sidney D. Merlin, Ph.D., Columbia. The theory of fluctuations in contemporary economics.

Clarence E. Philbrook, Ph.D., Chicago, 1949. The policy implications of the theoretical controversy over the effects of rigid wage rates.

Eugene Rotwein, Ph.D., Chicago, 1950. The political economy and economic philosophy of David Hume.

Jerome F. Schwier, Ph.D., St. Louis, 1950. Production function, Euler's theorem, and the theory of distribution.

Gerald K. Sharkey, Ph.D., Southern California, 1950. An analytical and descriptive study of interest rates, theories, and policies in the United States from 1933 to 1948.

Charles J. Stokes, Ph.D., Boston, 1950. The development and use of the consumer's surplus in economic analysis.

Samuel Wilcox, Ph.D., Virginia, 1950. Veblen's criticisms of the Austrians and the Classicists.

Theses Completed and Accepted

Harold S. Diamond, B.S., College of the City of New York, 1937; M.A., Columbia, 1939. Studies in innovation theory. *Columbia.*

Leo E. Dobriansky, B.S., New York, 1941; M.A., New York, 1943. The social philosophical system of Thorsten Veblen. 1951. *New York.*

Theses in Preparation

Lawrence Abbott, B.A., Harvard, 1924. Competition in quality. 1951. *Columbia.*

Elward Ames, B.A., Harvard, 1942; M.A., 1947; M.P.A., 1947. Induction and probability in economic decisions. 1951. *Harvard.*

Daniel Arrill, B.S.S., College of the City of New York, 1942; M.A., Columbia, 1948. The terms of trade, a theoretical and statistical analysis. 1952. *Columbia.*

Carlisle W. Baskin, B.S., South Carolina, 1942; M.A., Virginia, 1947. History of the literature relating to Christian principles in economic thought. 1952. *Virginia.*

A. L. Barrett, B.A., Georgia, 1937; M.A., Virginia, 1947. Theory of economic democracy. 1951. *Virginia.*

Nathan Bloom, B.S.S., College of the City of New York, 1942; M.A., Columbia, 1948. The nature of innovation in America, 1790-1865. 1952. *Columbia.*

Joe E. Brown, B.S., Texas College of Arts and Industries, 1939; M.S., 1941. Population theory and the value problem: an institutional economic analysis. 1951. *Texas.*

Robert Campbell. The emergence of classical economics: Sir James Stewart and Adam Smith. 1951. *California.*

Leslie E. Carbert, B.A., British Columbia, 1946; M.A., Columbia, 1947. Studies in the theory of consumption and expenditures. 1952. *Columbia.*

Ira C. Castles, B.S., Louisiana State, 1934; M.A., Columbia, 1948. A study of economic ideas in North Carolina, 1760-1860. 1952. *North Carolina.*

Margaret M. Charlesworth, B.Com., Queensland, Australia, 1942; M.S., Wisconsin, 1948. Incidence and effects of taxation under monopolistic competition. 1951. *Wisconsin.*

John S. Chipman, B.A., McGill, 1947; M.A., 1948. Intersectional income analysis. 1950. *Johns Hopkins.*

George F. Dimmler, B.A., California, 1936; M.A., Columbia, 1941. The transaction as a unit of economic analysis. 1951. *Columbia.*

Gordon Donald, Jr., B.A., Princeton, 1939; M.A., Chicago, 1942. The theory of marginal productivity and its application to the cotton textile industry in the United States. 1950. *Chicago.*

Rev. Cornelius A. Eller, S.J., B.A., Woodstock, 1936; M.A., Georgetown, 1940; S.T.L., Woodstock, 1944. A synthesis and criticism of the major economic doctrines contained in the writings of John A. Hobson. 1950. *St. Louis.*

A. C. Flora, Jr., B.A., South Carolina, 1943; M.A., 1949. Economic thought in South Carolina, 1815-1860. 1952. *North Carolina.*

Daniel R. Fusfeld, B.A., George Washington, 1942; M.A., Columbia, 1947. The economic thought of Franklin D. Roosevelt to 1933. 1951. *Columbia.*

Donald A. Garrett, M.A., Colorado, 1946. The theory and significance of the indifference analysis. *Indiana.*

Patrick W. Gearty, B.A., St. Paul Seminary, 1941; M.A., Catholic, 1947. Economic and social philosophy of Monsignor John A. Ryan. 1951. *Catholic.*

Francis C. Genovese, B.A., Toronto, 1942; M.A., 1946. A going concern theory of profits. 1951. *Wisconsin.*

Philip J. W. Glaessner, B.A., Cambridge, 1940; M.A., 1944. Economic development and the inflationary potential. 1951. *Columbia.*

Donald F. Gordon, B.A., Saskatchewan, 1944; M.A., Toronto, 1946. Some aspects of the theory of distribution employment and income. 1949. *Cornell.*

Howard H. Greenbaum, B.S., Columbia, 1939; M.S., 1945. Fund analysis as a tool in economic research. 1951. *Columbia.*

Morton C. Grossman, B.A., Pennsylvania, 1943; M.S., Ohio, 1947. Development theory and implications. 1951. *Wisconsin.*

Sherman Gunderson, Columbia, 1936. An appraisal of the economic theory and policy recommendations of John R. Commons. 1950. *Iowa State.*

Ingrid E. Hahne, B.A., Hunter, 1945; M.A., Pennsylvania, 1946. Joint costs. 1951. *Pennsylvania.*

David B. Hamilton, B.A., Pittsburgh, 1940; M.A., 1941. Economic theories and social change. 1950. *Texas.*

Edwin W. Hanczaryk, B.A., Brown, 1941; M.A., 1947. The interest rate in welfare economics. 1951. *Northwestern.*

Abraham Hirsch, B.B.A., College of the City of New York, 1943; M.A., Columbia, 1947. The business cycle research of Wesley C. Mitchell and the National Bureau of Economic Research. 1952. *Columbia.*

Donald S. Holm, M.A., Indiana, 1950. A history and analysis of the entrepreneurial concept in economic and related literature. 1950. *Indiana.*

J. Robert Karp, B.A., Brooklyn College, 1944; M.A., Princeton, 1947. Studies in the structure of interest rates. 1951. *Princeton.*

Murray C. Kemp, B.Com., Melbourne, 1946; B.A., 1947; M.A., 1949. A macro-economic theory of distribution. 1951. *Johns Hopkins.*

Alexander Kutcheroff, B.A., Wesleyan, 1946. Chernyshevsky's social and economic philosophy. 1951. *Columbia.*

E. E. Liebhafsky. National science policy and technological progress. 1951. *Illinois.*

Francis H. Loewenheim, B.A., Cincinnati, 1947; M.A., 1948. Bismarck's economic thought and policies before the Empire. 1952. *Columbia.*

Joseph P. McKenna, B.S., Harvard, 1946; M.A., 1950. Demand for consumer durable goods. 1950. *Harvard.*

John W. McKinney, B.A., Southern Methodist, 1937; M.A., Columbia, 1947. The financing of innovation. 1951. *Columbia.*

Michael McPhelin, B.A., Woodstock, 1935; M.A., 1936; S.T.L., 1942. Meaning and requirements of economic order. 1950. *Harvard.*

Thomas Mayer, B.A., Queens, 1949; M.A., Columbia, 1949. Studies in macroeconomics. 1952. *Columbia.*

Morris Mendelson, B.A., Queens University, 1946. Some aspects of consumer behavior. 1950. *Cornell.*

Carey P. Modlin, B.A., College of William and Mary, 1946; M.A., Princeton, 1948. Accounting theory and practice in the light of economic theory. 1951. *Princeton.*

Dean W. Morse, B.A., Harvard, 1941. Theories of economic development. 1951. *Columbia.*

Carl A. Nordstrom, B.A., Antioch, 1946; M.A., Columbia, 1949. The rate of economic development. 1952. *Columbia.*

Robert Osborn, Jr., B.A., Princeton, 1943; M.A., 1948. The concept of mobility in economic theory. 1951. *Princeton.*

Walter G. O'Donnell, LL.B., Cleveland, 1930; B.A., Western Reserve, 1932; M.A., 1943. An institutional theory of value. 1951. *Columbia.*

Ralph W. Pfouts, B.A., Kansas, 1942; M.A., 1947. The place of consumer's surplus in welfare economics. 1951. *North Carolina.*

Stanley Reiter, B.A., Queens, 1947; M.A., Chicago, 1950. Production, returns to scale, and the internal structure of the firm. 1951. *Chicago.*

Alan L. Ritter, B.A., DePauw, 1935. The application of the theory of imperfect competition to the determination of wages. 1951. *Wisconsin.*

Robert Rouse, Iowa, 1949. A reappraisal of the stagnation thesis. 1950. *Iowa State.*

Jacob Schmookler, B.A., Temple, 1940; M.A., Pennsylvania, 1947. The relation of invention to economic development. 1951. *Pennsylvania.*

Warren L. Smith, M.A., Michigan, 1949. The relation between macroeconomics and microeconomics. 1951. *Michigan.*

George W. Stolnitz, B.A., College of the City of New York, 1939; M.A., Princeton, 1942. Dynamic theory of the firm. 1951. *Princeton.*

Robert H. Strotz, B.A., Chicago, 1942. Some problems in the pure theory of income redistribution: a study in welfare economics. 1950. *Chicago.*

Paul E. Sultan, B.A., British Columbia, 1946. Wage and employment relationships. 1950. *Cornell.*

Tu Tu, M.S., National Central University, Nanking, 1945. The pricing system in a planned economy. 1950. *Illinois.*

Edgar L. Turgeon, B.A., California, 1942; M.A., 1948. On the theory of Socialist development. 1952. *Columbia.*

Malcolm C. Urquhart, B.A., Alberta, 1940. Capital accumulation, technological change, and economic progress: a study of economic change with special reference to the functional distribution of income. 1951. *Chicago.*

Robert F. Voertman, B.S., North Texas State College, 1946; M.A., Texas, 1948. The theories of economic development of Marx and the institutionalists applied to the development of ancient civilizations.

Bernard W. Wayne, Ph.B., Northwestern, 1942. The neo-historismus of Werner Sombart. 1950. *Chicago.*

Richard S. Weckstein, B.A., Wisconsin, 1947. A unification of recent interest theory. 1951. *Yale.*

Roger J. Williams, Jr., B.A., Reed, 1939. Freedom of entry. 1952. *Columbia.*

Murray Wolfson, B.S., College of the City of New York, 1948. Marx and modern economics. 1952. *Wisconsin.*

Economic History; National Economics

Degrees Conferred

John W. Chisholm, Ph.D., Louisiana State, 1950. The economics of the salt industry in the State of Louisiana.

Melvin A. Eggers, Ph.D., Yale, 1950. Development of the Japanese economy, 1850-1900.

William Haller, Jr., Ph.D., Columbia, 1950. The Puritan frontier: town-planning in New England colonial development, 1630-1660.

Forest G. Hill, Ph.D., Columbia, 1950. The role of the Army Engineers in the planning and encouragement of internal developments.

S. S. Liou, Ph.D., Minnesota, 1950. Possibilities of improving the Chinese agricultural situation through industrialization.

William W. Lockwood, Ph.D., Harvard, 1950. The economic development of Japan: growth and structural change, 1868-1938.

Davidson B. McKibbin, Ph.D., Chicago, 1949. Percival Farquhar: American promoter in Latin America, 1900-1914.

Abraham H. Sadove, Ph.D., Harvard, 1950. Transport improvement and the Appalachian barrier: a case study in economic innovation.

Charles S. Sheppard, Ph.D., Columbia, 1950. The depressed area of South Wales.

William P. Snavely, Ph.D., Virginia, 1950. Postwar developments in Italy with special reference to the future standard of living.

Theses Completed and Accepted

Leonard H. Bridges, B.J., Texas, 1940; M.A., Columbia, 1947. Life of Charlemagne Tower. *Columbia.*

Dorothy Gregg, B.A., Texas, 1943; M.A., 1945. The exploitation of the steamboat: the case of Col. John Stevens. 1950. *Columbia.*

Frances C. Hutner, B.A., Middlebury, 1940; M.A., Columbia, 1943. The Farr Alpaca Co.: a case study in business history. 1950. *Columbia.*

Theses in Preparation

Leonard J. Arrington, B.A., Idaho, 1939. Mormon economic policies 1847-1907: a study of the role of the church in the development of a region. 1951. *North Carolina.*

Frederick K. Abbott, B.S., Columbia, 1941; M.A., 1947. The Baldwins and internal improvements (1780-1830). 1952. *Columbia.*

William J. R. Adamson, B.A., Colgate, 1938; M.A., Columbia, 1948. The resort to government by business in England from the fall of the Corn Laws to the passing of limited liability. 1952. *Columbia.*

Martin Albaum, B.A., College of the City of New York, 1947; M.A., Columbia, 1949. Economic individualism in eighteenth-century France. 1952. *Columbia.*

Rosemary M. Arnold, B.A., Hunter, 1938. Markets and pricing in native economies of West Africa: an institutional analysis. 1952. *Columbia.*

Saul Benison, B.A., Queens, 1941. History of the Eastern Railway Pools, 1877-1897. 1950. *Columbia.*

Roman Bernaut, B.A., Columbia, 1947; M.A., 1949. The grain problem in the Soviet Union, 1926-30. 1951. *Columbia.*

George Billias. Land bank of Massachusetts, 1740. 1952. *Columbia.*

Robert C. Black, III, B.A., Williams, 1937; M.A., Denver, 1947. Railroads of the Confederacy in the Civil War. 1952. *Columbia.*

Jack Blicksilver, B.A., Queens, 1948. A study of the defenders and defense of big business and the concentration of wealth in America, 1865-1900. 1951. *Northwestern.*

Virginia W. Buckner, B.A., Texas, 1941; M.A., 1942. Agricultural depression in the United States during the last quarter of the 19th century. 1951. *Columbia.*

David D. Burks, B.A., Carleton, 1945. The dawn of manufacturing in Mexico. 1951. *Chicago.*

Janet G. Chapman, B.A., Swarthmore, 1943. Real wages in the Soviet Union, 1928-48. 1951, *Columbia.*

Theodore Cohen, B.S.S., College of the City of New York, 1938; M.A., Columbia, 1939. Merchant capital in feudal Japan. 1952. *Columbia.*

Stanley H. Cohn, B.A., Reed, 1947; M.A., Chicago, 1949. The role of the fiscal system in the Soviet economy. 1951. *Chicago.*

H. Jerome Cranmer, B.A., Drew, 1947; M.A., Columbia, 1949. Internal improvemepts in New Jersey. 1951. *Columbia.*

Harry S. Crowe, B.A., Manitoba 1947; M.A., Toronto, 1948. Tne state and economic life in Canada. 1952. *Columbia.*

Robert W. Davenport, B.A., Washington, 1943; Fletcher School, 1944. Soviet economic relations with Iran. 1952. *Columbia.*

Carl N. Degler, B.A., Upsala, 1942; M.A., Columbia, 1947. Labor and politics in New York City, 1850-1861. 1952. *Columbia.*

Harry M. Dixon, B.S., Illinois, 1940. Economic history of the eastern interior coal field. 1951. *Illinois.*

Rev. Francis J. Donoghue, B.A., Boston, 1939; M.A., 1940; S.T.L., Western College, 1946. Economic and social policies of John C. Calhoun. 1951. *Columbia.*

Anna B. Dutka, B.A., Brooklyn, 1939; M.S.S., New School for Social Research, 1940. The role of Germany in the continental European pattern of trade, 1927-1937. 1951. *Columbia.*

Harry English. The role of commercial policy in Canadian economic development. 1951. *California.*

Stephen V. Fulkerson, B.A., U.C.L.A., 1941; M.A., Chicago, 1947. Influence of the gentry as a class upon the society of Restoration England. 1951. *Chicago.*

Irving Garbati, B.S.S., College of the City of New York, 1942; M.A., Columbia, 1948. From laissez-faire to the Labor Party (a study of the British Trade Union movement in transition). 1952. *Columbia.*

Robert W. Gericke, B.A., Columbia, 1939; M.A., 1942. German commercial policy and party politics, 1890-1903. 1951. *Columbia.*

Morris Glickfeld. The sources of American industrial entrepreneurship, 1800-1865. 1951. *California.*

Carter H. Golembe, B.A., Columbia, 1946; M.A., 1947. Early state banks and economic development of the mid-west, 1830-1845. 1951. *Columbia.*

McGregor Gray, B.A., Reed, 1941; M.A., Columbia, 1942. The financial policy of the Emperor Hadrian. 1951. *Columbia.*

John P. Hardt, B.A., Washington, 1945; M.A., 1948. Soviet industrialization. 1952. *Columbia.*

Anne Heene, B.A., Barnard, 1943; M.A., Columbia, 1944. Economic and social origins of the Republican Party in New York State. 1951. *Columbia.*

HYMAN KURITZ, B.S., Milwaukee State Teachers College, 1938; M.A., Columbia, 1947. The Socialists and the trade union movement, 1865-1914. 1952. *Columbia.*

GRACE H. LARSEN, B.A., California, 1942; M.A., 1945. The Philadelphia merchant, 1763-1776. 1951. *Columbia.*

LU-SENG LI, B.A., Cambridge, 1947. Chinese Communists' economic policy for the first stage of China's transformation—the stage of new democracy. 1951. *Chicago.*

AGNES LIANG, B.A., Yenching University, 1935; M.A., Catholic, 1945. Structure of the United States in the 20th century. 1951. *Catholic.*

BENJAMIN LIGHTMAN, B.S., Rhode Island State College, 1943; M.A., Columbia, 1947. The New York business community in Civil War and reconstruction. 1952. *Columbia.*

P. V. SIVARAMA MURTHY, M.A., Madras, 1944. War and Indian agriculture, 1937-1947. 1952. *Columbia.*

JOHN NETER, B.S., Buffalo, 1943; M.B.A. Pennsylvania, 1947. A study of the United States post-war economics after World Wars I and II. 1953. *Columbia.*

JOHN E. O'HARA, B.S., Holy Cross, 1943; M.A., Columbia, 1945. Economic and social effects of the Champlain Canal upon the Champlain Valley, 1820-1860. 1951. *Columbia.*

ABBAS ORDOOBADI, B.A., Tehran, 1945; M.A., Maryland, 1948. Development policies in Iran. 1952. *Columbia.*

MAURICE S. PAPRIN, B.A., College of the City of New York, 1940; M.A., Wisconsin, 1941. Trade unions in political action in New York, 1896-1916. 1951. *Columbia.*

WINTON PETTIBONE. The economic development of Alaska. 1951. *California.*

A. W. PIERPONT, B.A., Washington and Lee, 1928; M.B.A., Harvard, 1931. Economic history of Burlington, North Carolina. 1951. *North Carolina.*

JEROME M. PINES, B.S., New York, 1935; M.A., Columbia, 1936. The economic development of Palestine. 1951. *Columbia.*

RAYMOND POWELL. The function of money in the Soviet economy. 1951. *California.*

HARRY S. PRICE, JR., B.A., Dartmouth, 1935; M.A., Teachers College, Columbia, 1938. John Quincy Adams, the business man, and the election of 1828. 1951. *Columbia.*

GHANDKOTA V. SUBBA RAO, B.A., Madras, 1947; M.A., 1949. Some aspects of capital formation in under-developed areas, with special reference to India. 1952. *Columbia.*

ALFRED S. RAY, M.A., Michigan, 1946. Economic development in Iran. 1950. *Michigan.*

ALAN D. REDDING, B.A., U.C.L.A., 1948; M.A., Columbia, 1950. Productivity in Soviet agriculture, a comparative study. 1952. *Columbia.*

DANIEL J. REED, B.S., St. Louis, 1947; M.A., 1948. The reinterpretations of British history by British Socialist historians. 1951. *Chicago.*

JACQUELINE RORABECK, B.A., California, 1945; M.S., Columbia, 1947. Economic conditions in the Benelux nations. 1953. *Columbia.*

RUTH A. ROSA, B.A., Brown, 1941; M.S., Radcliffe, 1942. History of the association of trade and industry in Russia, 1900 to 1917. 1951. *Columbia.*

JACK J. ROTH, B.A., Chicago, 1946. The Sorelian conception of revolution. 1951. *Chicago.*

MURRAY N. ROTHBARD, B.A., Columbia, 1945; M.A., 1946. American business fluctuations and contemporary opinion, 1815-1821. 1951. *Columbia.*

ALBERT E. SAFARIAN. The recovery of the Canadian economy in the 1930's. 1951. *California.*

NAFI SAYEM-ADDAHR, B.A., American University of Beirut, 1948; M.A., Johns Hopkins, 1949. Conditions of economic development in Syria. 1952. *Columbia.*

JUSTIN K. SCHAEFFER, B.A., Fordham, 1946; M.A., Columbia, 1948. German labor under National Socialism, 1933-1939. 1952. *Columbia.*

HENRY F. SCHOENBECK, B.A., Nebraska, 1931; M.A., 1936. Economics of J. K. Polk. 1951. *Nebraska.*

HARVEY SEGAL, B.A., North Carolina, 1943. Internal improvements activity and business cycles, 1834-1861. 1952. *Columbia.*

CHARLES E. SILBERMAN, B.A., Columbia, 1946. New Deal policies in the U.S.A. 1952. *Columbia.*

ALFRED G. SMITH, JR., B.A., Columbia, 1934; M.A., 1939. Economic readjustment of an old cotton state, South Carolina, 1820-1860. 1951. *Columbia.*

ARTHUR J. R. SMITH, B.A., McMaster, 1947; M.A., Harvard, 1949. The changing structure of public and private debt in the United States, 1914 to 1948. 1950. *Harvard.*

G. RALPH SMITH, M.S., Syracuse, 1940. The industrial development of Broome County (New York): 1900-1950. 1951. *Syracuse.*

JOHN S. SPRATT, B.A., Texas, 1928; M.A., 1928. The economic development of Texas, 1875-1901. 1951. *Texas.*

GEORGE S. SPRINGSTEEN, B.A., Dartmouth, 1943; M.A., Fletcher School, 1947. The British Navigation Laws: the influence of foreign nations upon their modification and repeal 1783-1849: a study in commercial policy. 1950. *Fletcher School of Law and Diplomacy.*

DALLAS H. STEINTHORSON, B.A., Queens, 1943; M.A., Harvard, 1948. Problems in input-output analysis of the Canadian economy. 1951. *Harvard.*

RUSSELL F. STRYKER, JR., B.A., Dartmouth, 1947; M.A., Columbia, 1948. The relation between Prussian industry and Prussian military power, 1850-1870. 1952. *Columbia.*

RONALD B. THOMPSON, B.A., Yale, 1935. Soviet managerial policy, 1928-1939. 1951. *Chicago.*

CHIU-FAAT JOSEPH TOM, B.A., Hastings, 1944; M.A., Chicago, 1947. Hong Kong and the South China economy. 1951. *Chicago.*

CHI PEI TSENG, Iowa, 1948. England as a case study in planning and freedom, 1945-1950. 1950. *Iowa State.*

LAWRENCE W. VAN MEIR, M.S., Kansas State College, 1949. Economic history of the Phillipsburg community. *Kansas.*

TSENG-CHUANG WANG, M.S., Minnesota, 1947. Land reform in China. 1950. *Minnesota.*

ESTON T. WHITE, B.A., Gettysburg, 1940; M.A., Maryland, 1947. The Chesapeake and Delaware Canal. 1952. *Columbia.*

JEAN L. WILLIS, B.A., Barnard, 1941; M.A., Columbia, 1947. American merchants and the British West Indies carrying trade, 1789-1807. 1952. *Columbia.*

ALBRIGHT G. ZIMMERMAN, B.S., Temple, 1942; M.A., 1947. Indian trade in Pennsylvania in the Colonial period. 1952. *Columbia.*

Statistics and Econometrics

Degrees Conferred

PHILIP W. BISHOP, Ph.D., Yale, 1950. The production function for the firm: a case study.

JOHN P. GILL, Ph.D., Texas, 1950. Foundations of both stratified and cluster sampling in social and economic surveys.

Theses in Preparation

JEAN A. BRONFENBRENNER, B.A., Chicago, 1939; M.A., 1948. Extent of bias in least squares estimation of a single stochastic equation in a complete system. 1951. *Chicago.*

CARL F. CHRIST, B.S., Chicago, 1943. An econometric model for the United States, 1921-48. 1950. *Chicago.*

OSCAR R. GOODMAN, B.B.A., Northwestern, 1943; M.S., Wisconsin, 1947. The economics of sales forecasting. 1951. *Wisconsin.*

WILLIAM HAMBURGER, B.A., Chicago, 1948; M.A., 1950. The consumption function. 1951. *Chicago.*

JOHN O. E. HARDIN, B.A., Handelshogskolan i Göteborg, Göteborg, Sweden, 1945; M.A., Minnesota, 1947. Concepts and measurement of productivity. 1951. *Minnesota.*

DELBERT C. HASTINGS, B.S., Minnesota, 1947; M.A., 1949. Application of area sampling in market research. 1953. *Minnesota.*

LOUIS B. KAHN, B.S., Lewis Institute, 1940; M.S., Wisconsin, 1947. A study of productivity and its measurement. 1951. *Wisconsin.*

PAUL W. MCGANN, B.A., Brown, 1938. Models for statistical cost studies of the firm. 1951. *Chicago.*

RICHARD H. OSTHEIMER, B.A., Columbia, 1943; M.A., 1946. Index numbers of the physical volume of production. 1952. *Columbia.*

Economic Systems; Planning and Reform; Cooperation

Degrees Conferred

Rev. Philip S. Land, S.J., Ph.D., St. Louis, 1950. Prolegomena to economic communities.

Hoh-Cheung Mui, Ph.D., Columbia, 1950. The emergence of the nationalization issue in the coal mining industry of Great Britain, 1893-1919.

Thesis Completed and Accepted

Nihad Ibrahim-Pascha, Baccalaurist Aleppo, 1941; in Philosophy, 1942; License in Law Beirut, 1942. Foreign trade and the Syrian economy. 1950. *Columbia.*

Theses in Preparation

Thad P. Alton, B.A., Alabama, 1945; M.A., 1946. Polish post-war economic planning. 1950. *Columbia.*

Barnett S. Eby, B.A., Southern California, 1927; Th.B., Princeton Theological Seminary, 1935; M.A., Princeton, 1942. Economics and the concept of justice. 1950. *Princeton.*

Bernard H. Friedman, M.A., Pittsburgh, 1948. Current issues in economic planning. 1952. *Pittsburgh.*

David Granick, B.S.S., College of the City of New York, 1944; M.A., Columbia, 1948. Soviet plant management and planning problems. 1951. *Columbia.*

Nan L. Grindle, B.A., Connecticut College, 1944; M.A., Fletcher School, 1946. The economics of socialism. 1950. *Fletcher School of Law and Diplomacy.*

Joseph Grunwald, B.S., Johns Hopkins, 1943. National budgeting in Norway: a case study. 1952. *Columbia.*

Rev. William H. Hohmann, S.J., B.A., Weston College, 1937; M.A., 1938; S.T.L., 1944. Economic content of social justice in early modern scholastics. 1950. *St. Louis.*

Norman M. Kaplan, B.A., Chicago, 1939; M.A., 1948. Models for socialist economic planning. 1951. *Chicago.*

Ira A. Kipnis, B.Mus., Northwestern, 1941; M.Mus., 1942; M.A., Chicago, 1944. American social ideas and the American Socialist Party, 1900-1912. 1951. *Chicago.*

Laurence E. Leamer, B.A., Chicago, 1939; M.A., 1939. Economics and democratic social action: a study of the role of economics in the education of citizens for a free society. 1951. *Chicago.*

Evelyn B. Lerner, B.S., College of the City of New York, 1940; M.A., Texas, 1946. Czechoslovakia and the two-year plan. 1951. *Columbia.*

Arthur L. Parks, B.A., Yale, 1928; M.A., Columbia, 1942. A history of consumers' cooperatives in New York City since 1900. 1951. *Columbia.*

Nicholas W. Rodin, B.Com., British Columbia, 1947; M.A., 1947; M.A., Columbia, 1950. Soviet price policies and administration. 1952. *Columbia.*

George G. Sause, Jr., B.A., Moravian, 1941. Land development-value problems and the British Town and Country Planning Act. 1952. *Columbia.*

Bernard Schurman, B.S.S., College of the City of New York, 1939; M.A., Columbia, 1947. Economic planning in a liberal-capitalist society: a study of the National Resources Planning Board, 1933-1943. 1952. *Columbia.*

Arthur O. Seltzer, B.A., Chicago, 1938; M.A., 1941. The English Town and Country Planning Act, 1947; a study in the economics of planning resource allocation. 1951. *Chicago.*

Valery J. Tereshtenko, Institute of Agricultural (Czechoslovakia) Cooperation, 1926; State Commercial Institute, Czechoslovakia, 1929. Organization and management of Soviet collective farms. 1951. *Columbia.*

Henry H. Ware, B.A., Pomona, 1932; M.A., Columbia, 1939. Economics of Soviet retail trade. 1951. *Columbia.*

National Income and Social Accounting

Theses in Preparation

Wendell M. Adamson, B.A., Indiana, 1928; M.A., 1937. The measurement of income in small geographic areas. 1951. *Columbia.*

Hector R. Anton, B.S., U.C.L.A., 1942; M.B.A., 1947. Techniques of analysis of the flow of business funds. 1951. *Minnesota.*

Edward C. Budd, Labor's share in the national income. 1951. *California.*

Alfred H. Conrad, B.A., Harvard, 1947; M.A., 1949. The distribution of income by size and factor share and the Leontief input-output matrix. 1951. *Harvard.*

Bahgat A. El-Tawil, B.Com., Fouad I University, Cairo, 1949. Amount and distribution of the national income of Egypt. 1952. *Columbia.*

Harlow W. Halvorson, B.S., Minnesota, 1938; M.S., 1940. A study of agricultural income and its relation to national income. 1951. *Minnesota.*

Ernest C. Harvey, B.Com., British Columbia, 1941; B.A., 1942; M.A., Columbia, 1948. Income of Arkansas and surrounding states by counties. 1952. *Columbia.*

Chia-Kuei Hsiao, B.A., National Tsing Hua, 1939; M. A., Columbia, 1949. The national income of the United States and China. 1951. *Columbia.*

Gilbert P. Maynard, M.B.A., Michigan. A critical examination of the application of accounting concepts and techniques to the national income. 1951. *Iowa State.*

Robert Schutz. Transfer payments and income inequality. 1951. *California.*

Donald Watson, Iowa, 1948. The theory of optimum distribution of personal income. 1951. *Iowa State.*

Edmund H. Woolrych, M.B.A., Harvard, 1947. Some aspects of private and social accounting: a measurement of the effects of capital investment in some areas of South America. 1951. *Syracuse.*

Business Fluctuations; Prices

Degrees Conferred

Paul G. Clark, Ph.D., Harvard, 1950. An empirical study of investment.

H. W. Grayson, Ph.D., Toronto, 1950. A comparative study of economic forecasting techniques.

Wendell D. Hance, Ph.D., Harvard, 1950. The influence of automotive transport development on investment and national income.

Edward Marcus, Ph.D., Princeton, 1950. Economic fluctuations in Canada 1927-1939.

Arthur G. Vieth, Jr., Ph.D., Washington University, St. Louis, Mo., 1950. Income flow and business cycles.

Haskell P. Wald, Ph.D., Harvard, 1950. The rationale of war finance.

Robert M. Williams, Ph.D., Harvard, 1950. Regional business cycles.

Sueh-Chang Yang, Ph.D., Harvard, 1950. China's depression and subsequent recovery 1931-1936.

Thesis Completed and Accepted

Lawrence C. Antonellis, Jr., B.A., Harvard, 1943; M.A., 1950. Statistical testing of economic theories: critical appraisal. *Harvard.*

Theses in Preparation

John S. Atlee, B.S., Chicago, 1941. Political aspects of full employment planning. 1952. *Columbia.*

A. E. Blackstone, B.S., Ohio, 1911; M.A., Pennsylvania, 1916. Cycles in real estate prices in Philadelphia. 1951. *Pennsylvania.*

William M. Capron, B.A., Swarthmore, 1942; M.A., Harvard, 1948. Technological change and capital growth in the iron and steel industry. 1950. *Harvard.*

Charles C. Holt, B.S., Massachusetts Institute of Technology, 1944; M.S., 1944; M.A., Chicago, 1950. The analysis of some business cycle theories which involve nonlinear economic relationships. 1951. ***Chicago.***

Harold K. Charlesworth, B.A., Carleton, 1939; M.B.A., Michigan, 1942. Repressed inflation. 1950. ***Wisconsin.***

Gladys N. Conly, B.A., Rochester, 1942; M.A., Columbia, 1943. Business cycles and municipal finance. 1951. ***Wisconsin.***

Richard M. Cyert, B.S., Minnesota, 1943. The effect of the business cycle on oligopoly pricing. 1951. ***Columbia.***

Robert Eisner, B.Soc.S., College of the City of New York, 1940; M.A., Columbia, 1942. Capital accumulation and business cycles: a theoretical exploration. 1950. ***Johns Hopkins.***

Andrew Eklund, B.A., Bard College of Columbia University, 1943; M.A., 1948. Investment theory and macroscopic analysis. 1951. ***Harvard.***

Guy S. Freutel, B.A., U.C.L.A., 1946; M.A., 1948. Differential regional growth. 1951. ***Harvard.***

Clinton L. Gardner, B.A., Denver, 1929; M.A., Columbia, 1943. War and postwar inflation in the United States: a study of the years of 1939-1946. 1951. ***Columbia.***

James W. Harvey. A study in the international transmission of business cycles: the 1929 downturn in the United States, Great Britain, and Canada. 1951. ***California.***

John D. Helmberger, B.S., Duluth State Teachers' College, 1941; M.S., Minnesota, 1947. Consumer credit and business stability. 1951. ***Minnesota.***

Bert G. Hickman, Jr. An historical study of the business cycle behavior of the textiles industry, U.S.A. 1951. ***California.***

David T. Lapkin, B.A., Harvard, 1942; M.A., Columbia, 1947. Business cycles in the Pacific northwest, a study in regional business cycles. 1952. ***Columbia.***

Francis H. Leacy, B.A., British Columbia, 1941. Price behavior in Canadian business cycles. 1952. ***Columbia.***

Robert G. Link, B.A., Columbia, 1939. British theories of economic fluctuations, 1792-1848. 1951. ***Columbia.***

Alden C. Manchester, B.A., Rollins, 1943; M.A., American University, 1948. The Boston egg market: effect of the quotation pricing system. 1950. ***Harvard.***

Eva Mueller, B.A., Smith, 1942; M.A., New York, 1945; M.A., Radcliffe, 1948. Business savings and the business cycle. 1951. ***Harvard.***

Allan H. Muir. Measures of comparative price flexibility and their limitations. 1951. ***California.***

Seymour Nagan, B.A., Columbia, 1942; M.S., Columbia School of Journalism, 1943. The recession of 1937-38. 1952. ***Columbia.***

Harold J. Plous, B.A., Wisconsin, 1946; M.S., 1948. The hazards of full employment. 1950. ***Wisconsin.***

Lawrence S. Ritter, B.A., Indiana, 1943; M.A., Wisconsin, 1948. The control of inflation: direct versus monetary fiscal measures. 1951. ***Wisconsin.***

Sam Rosen, B.A., Wisconsin, 1942; M.A., Harvard, 1948. Some aspects of the postwar economy in the U.S. and their theoretical implications. 1951. ***Harvard.***

Arthur R. Rosenbaum, B.A., Brooklyn, 1939; M.A., Columbia, 1941. Business attitudes toward counter-cyclical planning, 1929-1949. 1952. ***Columbia.***

Arnold W. Sametz, B.A., Brooklyn College, 1940; M.A., Princeton, 1942. The mature economy and secular stagnation. 1950. ***Princeton.***

Frederick N. Saas, B.S., Temple, 1938. Business failures and the business cycle. 1951. ***Pennsylvania.***

Eleanor M. Snyder, B.A., Connecticut College for Women, 1936; M.A., Columbia, 1938. Interactions of levels of prices, income and family expenditures. 1952. ***Columbia.***

Robert Solomon, B.A., Michigan, 1942; M.A., Harvard, 1947. The post-war business cycle in Belgium. 1951. ***Harvard.***

Arthur A. Wichmann, B.A., Southeastern Missouri State, 1937; M.B.A., Northwestern, 1942. Fluctuations in the level of income, employment and output: a comparative study of the theoretical views and policy proposals of Clark Warburton and Frank G. Graham. 1950. *Northwestern.*

Winifred H. Yang, B.A., St. John's, Shanghai, 1942; M.A., 1944; M.A., Washington, 1947. The causes and effects of hyper-inflation in China, 1945-47. 1952. *Columbia.*

Elliot Zupnick, B.S., College of the City of New York, 1947; M.A., Columbia, 1949. The economics of full employment, inflation and anti-inflationary policies. 1952. *Columbia.*

Money and Banking; Short-Term Credit; Consumer Finance

Degrees Conferred

Theodore A. Anderson, Ph.D., Wisconsin, 1950. Wisconsin banks 1848-1948.

Gerard M. Brannon, Ph.D., Harvard, 1950. The problem of national income prediction errors in full employment policy.

Edwin R. Corey, Ph.D., Harvard, 1950. The private placement of corporate securities with life insurance companies.

Abdelmoneim El-Banna, Ph.D., Harvard, 1950. Neutralizing money.

George B. Garvy, Ph.D., Columbia. The use of debits and clearing statistics in economic analysis.

Nevzat Gurpinar, Ph.D., Ohio State, 1950. Short term agricultural cooperative credit in the United States and Turkey, and suggestions for the improvement of the Turkish system.

Avram Kisselgoff, Ph.D., Columbia, 1950. Factors affecting the demand for consumer installment credit.

Eugene S. Klise, Ph.D., Harvard, 1950. The national debt and control of bank credit.

Murray G. Lee, Ph.D., New York, 1950. Commercial bank reserves in the United States: theory and practice.

Leland W. McCloud, Ph.D., Texas, 1950. Statistical study of state banks in Texas. 1939-1948.

Raymond H. McEvoy, Ph.D., Chicago, 1950. Effects of Federal Reserve policies, 1929-1936.

Eugene R. Schlesinger, Ph.D., Harvard, 1950. Taxation and economic progress in primary producing countries.

Edward Shapiro, Ph.D., Harvard, 1950. A study of the redistribution of income effected by the interest flow on the national debt during World War II.

Edward P. Shaw, Jr., Ph.D., Southern California, 1950. The history, organization and policies of the Bank of America National Trust and Savings Association.

Theses Completed and Accepted

Arthur Brickner, M.S., Columbia, 1941. Liquidity in commercial banking. *Columbia.*

Baen E. Lee, M.A., Chicago, 1921; M.B.A., New York, 1922. Modern banking reforms in China. *Columbia.*

Samuel A. Rosenberg, B.B.A., Boston, 1929; M.B.A., 1931. Development of credit unions in North Carolina. 1950. *North Carolina.*

Francisco R. Saenz, B.S., Columbia, 1942; M.S., 1942. The problem of exchange stabilization. *Columbia.*

Theses in Preparation

James H. Ashida, B.A., Washington, 1941; M.A., Pennsylvania, 1947; M.A., Chicago, 1948. Monetary reconstruction in Japan. 1951. *Chicago.*

John S. de Beers, B.A., Cornell, 1937; M.A., American University, 1939. The Mexican peso, 1940-49, with special emphasis on relationships between foreign exchange policy, economic development objectives and internal financial conditions and policies.

Morris Bornstein, M.A., Michigan, 1948. The task of central banking in the economic development of Brazil. 1951. *Michigan.*

Harry Brandt, B.A., Washington, 1947; M.S., Columbia, 1949. Post-war monetary and credit policy. 1953. *Columbia.*

Irving Brecher, B.A., McGill, 1943; M.A., Harvard, 1947. Monetary and fiscal thought and policy in Canda, 1919-1939. 1950. *Harvard.*

Grant C. Chave, B.A., Oberlin, 1943; M.A., Chicago, 1948. The opinions of organized groups concerning inflation during the period 1946-1948. 1950. *Chicago.*

Helen P. Crafton, M.A., Michigan, 1948. An historical and theoretical study of regional interest rate differentials. 1951. *Michigan.*

Paul G. Darling, B.A., Yale, 1937; M.A., New York, 1947. Liquidity functions of a central bank. 1951. *Columbia.*

Patricia McC. Diamond, B.A., Hunter, 1937; M.A., Columbia, 1938. United States monetary policy, 1933-1945. 1951. *Columbia.*

Winthrop Everett, Franklin and Marshall. The earnings of commercial banks. 1950. *Pennsylvania.*

Murray J. Franklin, M.A., Michigan, 1947. Recent monetary and fiscal policy in Great Britain. 1951. *Michigan.*

Jean Gilbert, B.A., Radcliffe, 1946; M.A., 1948. The theory of the capital market. 1951. *Harvard.*

Ralph T. Green, B.A., Texas A. & M., 1942; M.S., 1947. An analysis of the bank capital problems, with particular reference to member banks in the Eleventh Federal Reserve District. 1952. *Duke.*

John G. Gurley, B.A., Stanford, 1942. National income and liquid assets. 1950. *Stanford.*

John W. Hannaford, B.A., Wabash, 1947; M.A., Harvard, 1950. The French franc—1918-1938. 1951. *Harvard.*

Raymond W. Heatwole, B.S., Virginia, 1939; M.A., 1947. South Carolina State cash depositories. 1952. *Virginia.*

James Hellie, B.S., Minnesota, 1926; M.A., 1945. Interest rate policy in the war and post-war periods. 1952. *Minnesota.*

Robert W. Johnson, M.B.A., Harvard, 1946. Sources of funds for sales finance companies. 1951. *Northwestern.*

Henry I. Kester, B.A., State Teachers College, Whitewater, Wisconsin, 1944. Comparative study of risk in instalment cash loans and the loans of commercial banks. 1951. *Northwestern.*

Gerhardus P. C. de Kock, B.A., University of Pretoria (South Africa) 1946; M.A., 1947; M.A., Harvard, 1950. The history of the South African Reserve Bank 1920-1945. 1950. *Harvard.*

John P. Lutz, B.A., Amherst; M.B.A., Pennsylvania. Some problems of commercial bank reserves. 1951. *Pennsylvania.*

Paul McWhorter, B.S., Oklahoma A. & M., 1943; M.B.A., Ohio State, 1947. The problems of banks in small and medium-sized cities in rendering services to exporting and importing firms. 1950. *Ohio State.*

Lawrence J. Minet, B.A., Buffalo, 1948; M.S., Columbia, 1949. Changes in reserve requirements—commercial banks—United States and foreign nations, 1930-1950. 1953. *Columbia.*

Jack N. Ockerlander, B.S., Eau Claire St. Teachers College, 1940; M.A., Virginia, 1949. Some aspects of Federal Reserve credit policy. 1951. *Virginia.*

Harold F. Rasmussen, B.A., Dartmouth, 1938; M.A., Columbia, 1946. Changes in real cash balances and fluctuations in output. 1951. *Columbia.*

Ruth Reinsch, Dipl. rer. pol. Heidelburg University, 1948. The West German currency reform of June, 1948. 1950. *Kentucky.*

Anthony L. Sancetta, B.A., Western Reserve, 1937; M.S., Columbia 1939. The development of central banking in Italy. 1953. *Columbia.*

Frank W. Schiff, B.A., Columbia, 1942. Monetary policy and the control of bank holdings of the national debt. 1951. *Columbia.*

Leon M. Schur, B.A., Wisconsin, 1946. Influences exerted on the monetary authority. 1951. *Wisconsin.*

David Schwartz, B.A., Columbia, 1938; M.A., California, 1941. Reorganization of the German banking system under Allied occupation. 1951. *Columbia.*

Robert P. Shay, B.S., Virginia, 1944; M.A., 1946. An evaluation of Regulation W as a selective service for the control of credit. 1951. *Virginia.*

Bernard Sobin, B.S.S., College of the City of New York, 1938. Effects of monetary-fiscal policies on consumption and investment. 1952. *Columbia.*

George M. Taoka, B.A., Stanford, 1940; M.A., Columbia, 1942. Control policies of the Bank of Japan, 1937-1945. 1951. *Columbia.*

Linda Wen-Mei Tsao, B.A., St. John's University (China) 1945; M.S., Columbia, 1948. The gold problem. 1952. *Columbia.*

William A. Vogely, B.A., Kenyon College, 1945; M.A., Princeton, 1947. The commodity reserve standard. 1951. *Princeton.*

Philip M. Webster, B.S., Wisconsin, 1947; M.S., 1948. Trans-America Corporation: a case study of the bank holding company. *Wisconsin.*

Louis Winnick, B.A., Brooklyn, 1946; M.A., Columbia, 1947. The Federal Home Loan Bank system, 1920-1939. 1951. *Columbia.*

Harold Wolozin, B.S., Tufts, 1942. Control of consumer credit in war time. 1951. *Columbia.*

Business Finance; Investments and Security Markets; Insurance

Degrees Conferred

John F. Adams, Ph.D., Pennsylvania, 1949. Financial trends and company practices in British life insurance, 1932-1946; with some observations on comparative American trends.

John Strock Bickley, Ph.D., Wisconsin, 1950. The interest rate and life insurance.

Albert Dehner, Ph.D., Ohio State, 1950. Stock dividends and stock splittings.

Roy L. McPherson, Ph.D., Texas, 1950. The regulation of life insurance in Texas.

Frank J. Sabella, Ph.D., Pennsylvania, 1949. Common stock as a life insurance investment.

Chester R. Smith, Ph.D., Virginia, 1950. Farmers' Mutual Fire Insurance Companies in the Southeast.

Sterling Surrey, Ph.D., Pennsylvania, 1949. Development of convention form of life insurance statement.

Thesis Completed and Accepted

Edward F. Stauber, B.S., Niagara, 1940; M.A., Catholic, 1947. Financial survey of building and loan associations in the District of Columbia in the 20th century. 1951. *Catholic.*

Theses in Preparation

Adam S. Arnold, B.S., West Virginia State College, 1947; M.B.A., Wisconsin, 1948. The flow of capital since 1940. 1951. *Wisconsin.*

Thomas R. Atkinson, B.A., Denison, 1943; M.A., Wisconsin, 1948. Factors affecting individual security ownership based on a study of Wisconsin personal income tax returns. 1951. *Wisconsin.*

Herbert M. Axford, B.Com., Manitoba, 1941; M.Com. Toronto, 1947. Financing medium scale enterprise. 1951. *Wisconsin.*

Raymond R. Colton, B.S.S., College of the City of New York, 1931; M.A., Columbia, 1932. Regulation of public securities as legal investments in New York State. 1951. *Columbia.*

John Cowee, B.S., Wisconsin, 1947; M.B.A., 1948. Federal regulation of insurance. 1952. *Wisconsin.*

William O. Cummings, B.S., Pennsylvania, 1938. Management in ordinary life insurance agencies. 1951. *Pennsylvania.*

Victor B. Gerdes, B.S., Texas Technological College, 1947. Rating of equity securities. 1951. *Wisconsin.*

Simon H. Goldberg, M.A., McGill, 1940; M.A., Harvard, 1942. Growth and concentration of institutional savings and investments in Canada, with special reference to life insurance. 1951. *Harvard.*

Herbert C. Graebner, B.S., Valparaiso, 1930; M.B.A., Northwestern, 1931. Appraising the economic value of the human life. *Pennsylvania.*

Donald J. Hart, B.A., Lake Forest, 1938; M.A., Wisconsin, 1941. A reappraisal of the sources of surplus profits in a sellers' market. 1950. *Wisconsin.*

Fred A. Henningsen, B.A., Montana State, 1946; M.A., 1948. The development, scope and method of New York's regulation of insurance costs. 1951. *Pennsylvania.*

William M. Howard, B.Ph., Wisconsin, 1944; M.S., Wisconsin, 1947. The relation of sales forecasts to financial planning. 1950. *Wisconsin.*

Raymond C. Jancauskas, B.A., Loyola, 1936; M.A., St. Louis, 1940. Analysis of recent major Canadian investments. 1952. *Columbia.*

Lloyd A. Jenkins, B.A., Washington, 1931; M.A., 1942. Assessment life insurance in the United States. *Pennsylvania.*

Richard deR. Kip, B.S., Pennsylvania, 1936. Fraternal life insurance in the United States. 1950. *Pennsylvania.*

Robert Lekachman, B.A., Columbia, 1942. Investment outlay (with a case study of book and job printing). 1951. *Columbia.*

Donald L. MacDonald, B.S., American International College, 1947; M.A., Pennsylvania, 1948. Economic aspects of private placement of securities, with special reference to the life insurance industry. 1951. *Pennsylvania.*

Roderick F. McDonald, M.B.A., Northwestern, 1934. Adequacy of supply of business capital for small and medium sized enterprises. 1950. *Northwestern.*

Arthur W. Mason, Jr., B.S., Nebraska, 1942; M.A., 1947. Development of recent legal reserve life insurance companies since 1925. 1951. *Pennsylvania.*

Douglass C. North. A study of the changing character of the large insurance company in the last fifty years. 1951. *California.*

Donald W. O'Connell, B.A., Columbia, 1937; M.A., 1938. Loan guarantees and insurance. 1951. *Columbia.*

Jesse F. Pickrell, B.S., North Texas State College, 1946; M.B.A., 1948. An analysis of group accident and health insurance, 1951. *Pennsylvania.*

John E. Pierce, B.A., Tennessee, 1943; M.S., 1948. The integration of property forms of insurance. 1951. *Pennsylvania.*

Robert E. Schultz, B.S., Southern California, 1948; M.B.A., 1949. Investments of life insurance companies. 1951. *Pennsylvania.*

Donald Scoles, B.S., Northwestern, 1916; M.A., Pennsylvania, 1943. Development and application of the annuity principle by United States legal reserve life insurance companies. *Pennsylvania.*

Oscar Serbein, Jr., B.A., Iowa State, 1940; M.S., 1941. Distribution of costs in life insurance. 1953. *Columbia.*

Ben B. Sutton, B.S., Alabama, 1947; M.S., Wisconsin, 1948. Legal versus actual rights of stockholders. 1951. *Wisconsin.*

Guy W. Trump, Tulane. The role of the Securities Exchange Commission in corporate reorganizations. 1950. *Iowa State.*

Charles Walker, B.B.A., Texas, 1947; M.B.A., 1948. Security market policies of the Federal Reserve System. 1952. *Pennsylvania.*

Frank A. Young, B.B.A., Southern Methodist, 1942; M.A., Michigan, 1948. Reinsurance in life insurance. 1951. *Pennsylvania.*

Morton Zeman, B.A., Chicago, 1943; M.A., 1948. The effect of risk and uncertainty on the corporate demand for funds. 1951. *Chicago.*

Public Finance

Degrees Conferred

CAROL P. BRAINERD, Ph.D., Pennsylvania, 1950. Non-federal governments and their growth, 1909-1948.

EUGENE CLARK, Ph.D., Harvard, 1950. The federal income tax treatment of farmer cooperatives.

JACOB COHEN, Ph.D., Chicago, 1949. Governmental techniques of interest-saving on the public debt.

DOUGLAS H. ELDRIDGE, Ph.D., Chicago, 1949. Federal income taxation of mineral resources.

GENE L. ERION, Ph.D., Wisconsin, 1950. National government deficits with or without interest-bearing debt.

HOMER H. HAMNER, Ph.D., Southern California, 1950. Municipal finance problems of the City of Glendale, California—an analysis of their nature, trends and prospects.

WAYNE J. HOLMAN, Ph.D., New York, 1950. A study of the adequacy of the depreciation allowances of the Bureau of Internal Revenue for the cotton textile industry.

RIENZI W. JENNINGS, Ph.D., Kentucky, 1949. Taxation of thoroughbred racing. (Kentucky: University of Kentucky, Bureau of Business Research.)

JAMES R. KAY, Ph.D., Virginia, 1950. Fiscal and monetary policy in the war period.

NELSON H. C. LO, Ph.D., Southern California, 1950. A reformulation of the theoretical bases for a permanent federal excess profits tax.

DOUGLAS S. PAAUW, Ph.D., Harvard, 1950. Chinese public finance during the Nanking government period.

ROBERT T. PATTERSON, Ph.D., New York, 1950. Federal debt-management policies, 1865-1879.

NIEN-MIN SUN, Ph.D., Southern California, 1950. Resume of an economic analysis of the burden of public debt.

ROLF A. WEIL, Ph.D., Chicago, 1950. Federal aid to achieve state-local cooperation in a countercyclical fiscal policy.

MELVIN J. WHITE, Ph.D., Columbia, 1948. Personal income tax reduction in a business contraction. (Published as No. 564, Columbia Studies in History, Economics, and Public Law.)

REUBEN A. ZUBROW, Ph.D., Indiana, 1950. The Indiana Plan—a study of state administrative control over local finance.

Theses Completed and Accepted

DAVID M. BLANK, B.A., Columbia, 1941. Reform of state-local fiscal relations in New York State. 1950. ***Columbia.***

TUN YUAN HU, B.A., Wisconsin, 1928; M.A., 1929. The federal liquor tax in the United States. 1950. ***Columbia.***

Theses in Preparation

VANCE Q. ALVIS, B.S., Richmond, 1943; M.A., Virginia, 1946. The causes and subsequent developments with respect to the defaulted bonds of the State of Arkansas. 1951. ***Virginia.***

MORRIS BECK, B.A., Pennsylvania State, 1942; M.A., Columbia, 1947. The offsetting of business losses under the income tax. 1951. ***Columbia.***

HARVEY E. BRAZER, B.Com., McGill, 1943; M.A., Columbia, 1947. Coordination in Canadian federal finance. 1952. ***Columbia.***

GEORGE F. BREAK, Capital gains and losses in the federal tax system. 1951. ***California.***

COLIN D. CAMPBELL, B.A., Harvard, 1938; M.A., Iowa State, 1941. Property tax rate policy in the United States. 1950. ***Chicago.***

A. E. CARLSEN, M.A., Toronto, 1949. Developments in Canadian fiscal policy since 1932. 1951. ***Toronto.***

R. W. CASTLE, M.A., West Virginia, 1947. Taxation of public service corporations in West Virginia. 1952. *Pittsburgh.*

ALPHA CHUNG-I CHIANG, B.A., St. John's 1946; M.A., Columbia, 1948. Income taxation in the federal state: a study of jurisdictional conflict. 1952. *Columbia.*

LAWRENCE D. COOLIDGE, B.A., Columbia, 1946. Undistributed profits tax in Australia, 1915-1945. 1951. *Columbia.*

L. JOSEPH CRAFTON, M.A., Michigan, 1948. The effect of the corporate income tax on the quantity and types of investable funds. 1951. *Michigan.*

JOHN M. CULBERTSON, M.A., Michigan, 1947. The theory and history of public debt. 1951. *Michigan.*

DONALD J. DALY, B.A., Queens, 1943; M.A., 1948. Forecasting Canadian federal tax yields. 1951. *Chicago.*

C. C. DAWSON, B.S., Kentucky, 1927; M.A., George Peabody College, Nashville, Tennessee, 1931. History of tax administration in Kentucky since 1850. 1951. *Kentucky.*

RICHARD F. ERICSON, M.B.A., Chicago, 1948. The taxation of investment companies in the United States. 1951. *Indiana.*

JOE S. FLOYD, JR., B.S., Florida, 1943; M.A., North Carolina, 1946. The taxation of manufacturing corporations. 1950. *North Carolina.*

ROBERT FREEDMAN, B.A., Boston, 1942. The role of government lending agencies in the inflation of 1945-48. 1951. *Yale.*

HOWARD C. GARY, B.A., Brooklyn, 1942; M.A., Wisconsin, 1947. Analysis of Russian finances. 1951. *Wisconsin.*

JOSEPH A. GREENE, B.A., Berea College, 1941; M.A., Virginia, 1943. The taxation of public utilities in Virginia. 1951. *Virginia.*

ARCHIBALD S. HALL. Cook County and downstate Illinois: the fiscal relationship. 1951. *Illinois.*

PEGGY HEIM, B.A., Duke, 1945; M.A., 1946. Attempts of the federal government to defray the cost of federal irrigation projects through the recovery of increments in land value. 1952. *Columbia.*

RICHARD J. L. HERSON, B.S., College of the City of New York, 1938; M.S., Columbia, 1939. Factors determining bids on government contracts in the textile and needle trades. 1953. *Columbia.*

DANIEL M. HOLLAND, B.A., Columbia, 1941. Taxation of corporate earnings viewed as personal income shares. 1951. *Columbia.*

FRANKLYN D. HOLZMAN, B.A., North Carolina, 1940; M.A., Harvard, 1948. Soviet budget system. 1951. *Harvard.*

BENJAMIN J. KATZ, M.A., Harvard, 1949. Taxation in New Hampshire. 1951. *Harvard.*

ALBERT KESSLER, B.S., City College of New York, 1946; M.A., Wisconsin, 1948. The Israeli economic budget and planned development. 1952. *Wisconsin.*

DONOR LION, B.A., Harvard, 1945; M.A., Buffalo, 1948. The federal debt and economic activity, 1800-1950. 1951. *Harvard.*

JAMES B. LUDTKE, M.A., Iowa, 1948. Some aspects of national debt management. 1951. *Iowa State.*

DALE C. MARCOUX, B.S., Kansas, 1929; M.B.A., 1937. The level of the federal personal income tax exemption. 1953. *Minnesota.*

ROBERT L. MILLS, B.A., Kentucky, 1938; M.A., 1941. A method of measuring ability of Kentucky school districts to support an educational program from local revenue possible under present tax laws. 1950. *Kentucky.*

ALFRED D. MORGAN, B.A., Georgia, 1939; M.A., Wisconsin, 1941; M.A., Harvard, 1947. The fiscal anatomy of wartime Japan, 1937-1945. 1950. *Harvard.*

LAWRENCE B. MYERS, B.S., Temple, 1945; M.A., Wisconsin, 1947. Some aspects of Swedish public finance. 1951. *Wisconsin.*

CHESTER MYSLICKI, M.A., Michigan, 1949. Problems of debt management. 1951. *Michigan.*

KARL NYGAARD, B.A., Duke, 1948. Fnancing government in North Carolina. 1952. Duke.

ERNEST F. PATTERSON, B.S., S.W.T.T.C., 1941; M.A., Texas, 1947. Public finance in Argentina. 1950. *Texas.*

Raymond L. Richman, LL.B., Chicago-Kent College of Law, 1940; M.A., Chicago, 1948. The economic effects of the tax treatment of capital gains and losses in the United States and Great Britain. 1951. *Chicago.*

Seymour Sacks, B.S.S., College of the City of New York, 1943; M.A., Columbia, 1948. Tax estimates and the business cycle. 1952. *Columbia.*

James C. Sager, B.A., Berea College, 1948; M.A., Virginia, 1950. The position of the income tax in state taxation. 1952. *Virginia.*

Hamed A. El Sayeh, B.A., Fouad 1st University, Cairo, Egypt; M.B.A., Denver, 1947. The United States Treasury Department views on legislation affecting income tax administration since 1932. 1950. *Kentucky.*

William G. Schmeling, B.A., Kansas, 1938; M.A., Columbia, 1940. Relation of taxation to national income. 1951. *Columbia.*

John Shannon, B.A., Notre Dame, 1947. An analysis of statewide programs to improve local assessments with special reference to Kentucky. 1951. *Kentucky.*

Louis Siegelman, B.S., Queens, 1942; M.A., Pennsylvania, 1950. Development and analysis of the Pennsylvania public school subsidy, 1834-1949. 1950. *Pennsylvania.*

Robert A. Sigafoos, M.A., Pennsylvania State, 1949. The municipal income tax in the United States. 1951. *Indiana.*

Herbert A. Smith, B.S., Pittsburgh, 1943; M.A., Columbia, 1947. A critique of federal subsidies to private enterprises. 1951. *Columbia.*

Lee C. Soltow, B.A., Wisconsin, 1948; M.A., 1949. State income tax yields. 1952. *Wisconsin.*

Richard E. Speagle, B.A., U.C.L.A., 1946; M.A., 1947; M.A., Princeton, 1949. Comparative public debt policy, 1939-1949—United States and Canada. 1951. *Princeton.*

Richard K. Stuart, B.S., Rhode Island State, 1938; M.S., 1940. The economics of public improvement financing in Maine. *Pennsylvania.*

Clara G. Sullivan, B.A., Mount Holyoke, 1936; M.A., Columbia, 1942. The value-added tax. 1952. *Columbia.*

Carey C. Thompson, B.A., Texas, 1928; M.A., 1931. Financial aspects of unemployment compensation. 1950. *North Carolina.*

Wilbur R. Thompson, M.A., Michigan, 1949. Institutional aspects of fiscal policy: a regional approach. 1952. *Michigan.*

Norman B. Ture, M.A., Chicago, 1947. Federal debt policy during the war years. 1951. *Chicago.*

Earl K. Turner, B.A., Berea, 1931; M.A., Kentucky, 1937. Design of an assessor's manual for a particular state. 1950. *Kentucky.*

G. Carl Wiegand, B.A., New Mexico, 1944; M.A., 1945. Fiscal developments in postwar Germany and their economic, political and monetary backgrounds. 1950. *Northwestern.*

Robert L. Winestone, B.A., Oregon, 1939; M.A., 1942. The undistributed profits tax as a counter cyclical device. 1951. *Northwestern.*

Chao-Hsun Wu, B.A., St. John's, Shanghai, 1945; M.A., Illinois, 1948. Inter-jurisdictional fiscal relations in federal and unitary countries. 1952. *Columbia.*

International Economics

Degrees Conferred

Robert E. Baldwin, Ph.D., Harvard, 1950. The economics of internal migration in the United States, 1870-1940.

Arnold C. Harberger, Ph.D., Chicago, 1950. Currency depreciation and elasticity of demand for imports.

Paul G. Hastings, Ph.D., Pennsylvania, 1950. Canada-United States Customs Union—a study of trade relations between Canada and the United States with particular reference to the possibility of a customs union between the two countries.

Malcolm W. Hogg, Ph.D., Chicago, 1950. Full employment policies and international equilibrium.

Robert W. James, Ph.D., Chicago, 1949. Wartime economic cooperation: a study of relations between Canada and the United States.

Ilse Mintz, Ph.D., Columbia, 1950. The decline in quality of American foreign investments, 1920-1930.

John P. Powelson, Ph.D., Harvard, 1950. French exports and commercial policy, 1919-1949.

Robert W. Stevens, Ph.D., Michigan, 1950. Partial equilibrium in the theory of international economics.

Luz Torruellas, Ph.D., Harvard, 1950. The United States commercial policy towards Puerto Rico.

Martin B. Wolfe, Ph.D., Columbia, 1950. The French franc between the wars, 1919-1939.

Jacques E. Yenni, Ph.D., California, 1949. International economic relations in the light of Catholic social doctrine.

Theses in Preparation

Carl E. Abner, B.S., Queens, 1942. Commercial policy under the International Trade Organization. 1951. *Columbia.*

William R. Allen, B.A., Cornell College, 1948. An evaluation of the Reciprocal Trade Agreements Program. 1951. *Duke.*

Martha S. Atkinson, B.A., Park College, 1944; M.A., Wisconsin, 1948. Problems arising in formation of the Benelux Customs Union. 1951. *Wisconsin.*

Harry R. Biederman, B.A., U.C.L.A., 1948; M.A., Columbia, 1949. International aspects of the U.S. agricultural policies. 1952. *Columbia.*

Jack F. Bennett, B.A., Yale, 1944. Payments agreements and convertibility. 1951. *Harvard.*

Joel Bernstein, B.A., Chicago, 1942; M.A., 1948. The economic significance of some British bulk purchasing agreements. 1951. *Chicago.*

Charles S. Benson, B.A., Princeton, 1943; M.A., Columbia, 1948. United States imports of primary commodities since 1870. 1951. *Columbia.*

Walter Beveraggi, M.A., Harvard, 1944; LL.B., Buenos Aires, 1943. Argentine foreign trade under exchange control. 1950. *Harvard.*

Richard G. Birnberg, B.A., Columbia, 1941; M.A., Chicago, 1948. Theory of a persistent "dollar shortage" and a stable multilateral open trading system. 1951. *Chicago.*

Kenneth A. Bohr, M.S., Massachusetts Institute of Technology, 1947. The development of steel industries in under-developed areas. 1950. *Massachusetts Institute of Technology.*

Royall Brandis, B.A., Richmond College, 1940. International trade in raw cotton, 1927-1948. 1951. *Duke.*

Frederick Breier. United States trade and European exchange control. 1951. *California.*

Arnold Brekke, B.S., Minnesota, 1942. American agriculture and the world economy. 1951. *Minnesota.*

Marcus C. Bruhn, B.Ed., Eau Claire Teachers' College, 1934; M.A. Minnesota, 1942. French foreign exchange and trade controls, 1929-1949. 1952. *Wisconsin.*

Bue Brun, B.A., Oslo, 1943; M.A. Fletcher School, 1948. International maritime policy. 1951. *Fletcher School of Law and Diplomacy.*

Roberto de O. Campos, Philosophy and Classical Letters, Brazil, 1932; M.A., George Washington, 1947. Terms of trade and economic development. 1952. *Columbia.*

William B. Dale, B.A., Michigan, 1944; M.A., Fletcher School, 1947. Full employment and American foreign policy. 1951. *Fletcher School of Law and Diplomacy.*

Nazih Ahmed Deif, B.Com., Fouad I Universty (Egypt), 1944. Egypt's post War II balance of trade. 1951. *Chicago.*

M. Audrey Dickerson, B.S., Miner Teachers College, 1940; M.A., Catholic, 1941. Western Europe's balance of payments during the post-war recovery period. 1952. *Columbia.*

FRANCOIS M. DICKMAN, B.A., Wyoming, 1947; M.A., Fletcher School, 1948. The economic foreign policy of the United States in Western Europe from 1945 to 1948. 1951. ***Fletcher School of Law and Diplomacy.***

LAURENCE P. DOWD, M.A., Hawaii, 1940. Dynamics of the Japanese foreign exchange policy. 1950. ***Michigan.***

HARRY C. MACC. EASTMAN, B.A., Toronto, 1947; M.A., Chicago, 1947. Postwar Canadian commercial policy. 1951. ***Chicago.***

EDITH ELBOGEN, M.A., Wellesley, 1942. Changes in industrial structure, affecting foreign trade, imposed by war and maintained by commercial policy—two cases: Bohemia-Moravia, Argentina. 1951. ***Columbia.***

Y. S. EL MOLLA, B.M., Fouad I University (Egypt), 1940; M.A., Harvard, 1949. The impact of American economic conditions on the Egyptian economy. 1950. ***Harvard.***

J. WILLIAM FREDRICKSON, B.S., Northwestern, 1938; M.A., Chicago, 1942. American shipping and foreign commerce, 1789 to 1860. 1951. ***Chicago.***

GEORGE P. FOUSEK, B.A., Cambridge, 1946; M.A., Columbia, 1947. Devaluation of the pound. 1952. ***Columbia.***

JOHN O. GALLAGHER, B.A., Tufts, 1943; M.A., Fletcher School, 1948. The London Monetary Conference of 1933. 1951. ***Fletcher School of Law and Diplomacy.***

EDITH F. GALPERT, B.A., Reed, 1944; M.A., Columbia, 1946. International diffusion of industrial technique. 1952. ***Columbia.***

FRANZ GEHRELS, B.A., Stanford, 1942. Capital movements in the British balance of payments. 1950. ***Stanford.***

WAYNE F. GEISERT, B.A., McPherson College, Kansas, 1944. Transport costs in the theory of international trade. 1951. ***Northwestern.***

JOHN F. GRAHAM, B.A., British Columbia, 1947; M.A., Columbia, 1948. Criteria for exchange rate adjustments. 1952. ***Columbia.***

FRANCES A. GULICK, B.A., Linfield, 1940; M.A., Fletcher School, 1941. United States economic policy toward China: an evaluation of economic policy and practice in relation to our objectives. 1951. ***Fletcher School of Law and Diplomacy.***

JOSEPH A. HASSON, B.A., Washington, 1943; M.B.A., Chicago, 1947; M.A., 1950. Stabilization attempts in a "dependent" economy and the effects on its balance of payments—a case study of Australia. 1951. ***Chicago.***

HUGH K. HAWK, B.A., Birmingham-Southern College, 1941; M.A., Virginia, 1943. International aspects of the aluminum industry. 1951. ***Virginia.***

WILLIAM J. HEUSER, B.A., Columbia, 1940; M.A., 1941. The Russian attitude toward trade with Germany, 1891-1916. 1951. ***Columbia.***

FRANK H. GOLAY, B.S., Central Missouri State Teachers College, 1936; M.A., Chicago, 1948. The evolution of payments agreements in Western Europe under the E.C.A. 1950. ***Chicago.***

CHARLES HOFFMAN, B.A., Queens, 1942; M.A., Columbia, 1947. International industrial efficiencies and comparative cost theory. 1951. ***Columbia.***

HELEN M. HUNTER, B.A., Smith College, 1943; M.A., Radcliffe, 1947. United States' international trade in wood pulp. 1951. ***Harvard.***

JOHN M. HUNTER, B.S., Illinois, 1943; M.S., 1947; M.A., Harvard, 1949. A case study of the economic development of an underdeveloped country: Cuba, 1899-1935. 1950. ***Harvard.***

WILLIAM A. JARACZ, B.S., Harvard, 1947; M.B.A., Pennsylvania, 1948. Poland: commercial policy and foreign trade. 1951. ***Pennsylvania.***

HEINZ JAUCH, B.S.S., College of the City of New York, 1942; M.A., New York, 1947. Relationship of concentration of industry to international trade. 1951. ***Columbia.***

LORA KATZ, B.A., Hunter, 1945; M.A., Radcliffe, 1948. Business cycle aspects of international trade. 1951. ***Harvard.***

WILLIAM T. KELLEY, B.A., Toronto, 1939; M.B.A., Pennsylvania, 1941. The international wheat agreement of 1949. 1951. ***Pennsylvania.***

WILLIAM G. MCCARROLL, B.A., Kansas, 1936; M.A., Wisconsin, 1939. The significance and principles of compilation of the balance of payments statement. 1951. ***Wisconsin.***

JOHN MCKNIGHT, B.S.S., College of City of New York, 1939; M.A., Columbia, 1947.

United States-Canadian trade, 1932-1938 (a study in the income and expenditure approach to the theory of international trade). 1952. ***Columbia.***

CARL H. MADDEN, B.A., Virginia, 1942; M.A., 1950. Inter-European payments plan. 1952. ***Virginia.***

JAMES R. MADDOX, M.A., Illinois, 1943. International balance of payments adjustments under the gold standard. 1951. ***Illinois.***

WILL E. MASON, B.A., Pacific, 1935; M.A., Washington, 1942; M.A., Princeton, 1947. Analysis of inductive "verifications" of the classical theory of adjustment to unilateral capital transfers. 1950. ***Princeton.***

GILBERT M. MELLIN, M.A., Pittsburgh, 1949. An analysis of the Point Four Program with special reference to the problems of selected under-developed countries. 1951. ***Pittsburgh.***

JEAN L. MICKEY, B.S., Michigan State College, 1942; M.S., Iowa State College, 1945. Relations of technical assistance to levels of living in underdeveloped areas. 1950. ***Iowa State College.***

ERVIN MILLER, B.A., Pennsylvania, 1941. Criteria of equilibrium in international exchange rates. 1951. ***Pennsylvania.***

JOHN McC. MITCHELL, B.A., Columbia, 1941; M.A. 1942. The trade potential of France and her colonies with the United States.

KATHRYN M. MITCHELL, M.A., Clark, 1942. International trade in United States canned foods. 1951. ***Pittsburgh.***

KRISHNA MOHAN, B.A., Delhi University, 1945; M.A., Madras University, 1947. Japanese balance of payments, 1900-1910. 1952. ***Wisconsin.***

NORMAN W. MOSHER, B.A., Maine, 1943; M.A., 1947; M.A., Fletcher School, 1948. State trading and Great Britain: a case study of state training, methods of its implementation, the effects on the national economy, and its relation to multilateral trade. 1951. ***Fletcher School of Law and Diplomacy.***

JAMES E. MOYER. Postwar United States-Italian economic relationships. 1951. ***Illinois.***

JOHN E. MURPHY, B.S., College of the City of New York, 1942; M.A., Columbia, 1948. The sterling area in transition (with special reference to the war and post-war period). 1952. ***Columbia.***

ROBERT W. OLIVER, B.A., Southern California, 1943; M.A., Princeton, 1947. The International Bank for Reconstruction and Development. 1951. ***Princeton.***

HARRY T. OSHIMA, B.A., Hawaii, 1940. International comparisons of national income. 1952. ***Columbia.***

SHANTILAL N. PATEL, B.Com., Bombay (India), 1946; M.B.A., Pennsylvania, 1948. Commercial relations between India and Pakistan. 1952. ***Pennsylvania.***

EDITH T. PENROSE, B.A., California, 1936; M.A., Johns Hopkins, 1948. The international economics of the patent system. 1950. ***Johns Hopkins.***

ARLIN D. PEPMUELLER, M.A., Iowa, 1945. An analysis of Latin American exchange control systems, 1930-1950. 1951. ***Iowa State.***

RICHARD PERLMAN, B.A., Cornell, 1947; M.A., Columbia, 1949. New trends in the theory of international capital movements. 1951. ***Columbia.***

JOHN M. PFAU, B.A., Chicago, 1947; M.A., 1948. American investments in Western Europe, 1918-1940. 1951. ***Chicago.***

NEAL POTTER, B.A., Minnesota, 1937; M.A., 1940. Geneva trade agreements and the International Trade Organization. 1950. ***Chicago.***

ROBERT G. PRODRICK, B.A., Toronto, 1938. The American tariff administration in its effects on Canadian trade with the United States. 1952. ***Columbia.***

ALBERT J. RAEBECK, B.A., Columbia, 1942; M.A., 1943. America's influence on international business cycles. 1951. ***Columbia.***

OTTO R. REISCHER, B.A., Michigan, 1946; M.A., Columbia, 1948. Studies in Soviet foreign economic policy. 1951. ***Columbia.***

EDWIN P. REUBENS, B.A., College of the City of New York, 1935. Capital goods imports in industrialization. 1951. ***Columbia.***

JOHN E. REYNOLDS, B.A., Harvard, 1944; M.A., 1950. Canadian foreign economic policy, 1945-49. 1950. ***Harvard.***

Franklin R. Root, B.S., Trinity College, 1947; M.B.A., Pennsylvania, 1948. Britain's trade: a study in multilateralism. 1950. *Pennsylvania.*

Alexander M. Rosenson, B.S., California, 1937; M.A., 1938. Aspects of British postwar external finance. 1950. *Chicago.*

Antioco Sacasa, B.A., Institute Nacional, Leon, Nicaragua, 1933; B.S., 1933; Doctor en Derecho, Universidad de Leon, 1939; M.A., Ohio State, 1944. Central America: economic analysis. 1950. *Minnesota.*

Henry Schloss, B.A., Nebraska Wesleyan, 1946; M.B.A., Columbia, 1948. Bank for international settlements reconsidered. 1953. *Columbia.*

Wilson E. Schmidt, B.S., Maryland, 1947; M.A., Pittsburgh, 1948. Multiple exchange rates in Latin America. 1951. *Virginia.*

Edith G. Severo, B.A., Hunter, 1941; M.A., Wisconsin, 1943. Investment plans and policies under ERP, with special emphasis on balance of payments difficulties. 1952. *Columbia.*

Zaki M. Shabana, B.S., Fouad I University (Egypt), 1941; M.S., Wisconsin, 1948. Competitive situation of Egyptian cotton in American markets. 1951. *Wisconsin.*

Irving A. Sirken, B.A., McGill, 1942; M.A., 1943; M.A., Harvard, 1947; M.P.A., 1947. Canada's postwar balance of payments. 1951. *Harvard.*

Gerald Sirkin, B.A., Harvard, 1942; M.A., Columbia, 1948. The effects of the British devaluation of the pound. 1952. *Columbia.*

Herman T. Skofield, B.A., New Hampshire, 1947; M.A., Fletcher School, 1948. Private foreign investment. 1950. *Fletcher School of Law and Diplomacy.*

Douglas B. Smith, B.A., Reed, 1942. The effects of foreign investment and industrialization in undeveloped areas on the economy of the United States. 1951. *Columbia.*

Augustus W. Springer, B.A., Michigan, 1946; M.A., Virginia, 1950. Recovery of foreign trade in the postwar economy of Japan. 1951. *Virginia.*

Irving Stone, B.S.S., College of the City of New York, 1946; M.A., Columbia, 1948. Changes in British overseas investment, 1939-1945. 1952. *Columbia.*

Wei-tseng Sze, M.L., Pittsburgh, 1950. International trade in wheat. 1952. *Pittsburgh.*

William B. Thompson, B.A., Michigan, 1945; M.A., Columbia, 1947. American petroleum exports, 1851-1911. 1951. *Columbia.*

Violette E. Thouvenin, B.A., Hunter, 1944; M.A., Columbia, 1945. Currency convertibility in Western Europe. 1952. *Columbia.*

Rudolph W. Trenton, D.Jur., Rome, 1936; Dr. Political Science, Turin, 1938. The export control system of the United States. 1951. *Columbia.*

Donald M. Troup, B.S., Mt. St. Mary's, 1943; M.A., Catholic, 1948. Lend lease: a new approach to the problem of intergovernmental debts. 1951. *Catholic.*

Lester VandeBerg, B.A., Morningside College, 1941. American investments in Honduras. *Chicago.*

Donald H. Voss, B.A., Princeton, 1947; M.A., 1949. The changing structure of the instruments of commercial policy. 1951. *Princeton.*

Naomi Waxman, B.A., Chicago, 1940. Forms and effects of industrialization in the development of underdeveloped areas. 1952. *Columbia.*

Leonard W. Weiss, B.S., Northwestern, 1945; M.A., Columbia, 1949. The British colonies in the sterling area balance of payments. 1952. *Columbia.*

Charles A. Yager, M.A., Michigan, 1948. The role of French capital in the development of French Indo-China. 1951. *Michigan.*

Shu-Chin Yang, B.A., Central Institute of Political Science, China, 1939; M.A., Nankai Institute of Economics, China, 1943. The theory of international equilibrium as a basis for commercial policy.

Business Administration

Degrees Conferred

Sidney Cohen, Ph.D., New York, 1950. Regional factors of department store sales for selected items of women's outer-wear.

Sidney Davidson, Ph.D., Michigan, 1950. Depreciation theory with special reference to regulation of public utilities.

Elizabeth Lanhan, Ph.D., Texas, 1950. The job evaluation program of the state farm insurance companies compared with those of other leading insurance companies as to methods of introducing and content.

Charles L. Lapp, Ph.D., Ohio State, 1950. The supervision of non-retail salesmen.

Emanuel E. Last, Ph.D., New York, 1950. Personnel budgeting in retailing.

Herbert A. Nicholaus, Ph.D., Wisconsin, 1950. Economic aspects of progressional management counseling.

Henry J. Ollinger, Ph.D., Washington University, St. Louis, Missouri, 1950. Enterprise leadership in transition.

Glenn H. Stewart, Ph.D., Southern California, 1950. The development and application of a formula for management.

Robert W. Twyman, Ph.D., Chicago, 1950. A history of Marshall Field and Company.

Eugene C. Yehle, Ph.D., Michigan, 1950. Working capital requirements in American corporations.

Theses Completed and Accepted

Roy Ashmen, M.S., Columbia, 1936. A study of collecting and reporting butter prices at Chicago by the U. S. Department of Agriculture, 1938-39. 1950. *Northwestern.*

William W. Cooper, B.A., Chicago, 1938. Historical and alternative costs: a study in some relations between the economic theory of the firm and accounting control of operations. *Columbia.*

Frank Lang, B.B.A., Tulane, 1940; M.B.A., Ohio State, 1943. A public relations program for insurance. 1950. *Columbia.*

Theses in Preparation

Edward C. Atwood, Jr., B.A., Princeton, 1946; M.A., 1950. The theory of the futures market. 1951. *Princeton.*

Charles E. Bastable, Jr., B.S., Columbia, 1938; M.S., 1939. The presentation of accounting to general students of business. 1952. *Columbia.*

Albert L. Bell, B.S., Franklin and Marshall, 1945; M.A., Pennsylvania State, 1940. A critical analysis and evaluation of the functioning of fixed capital accounting in its relationship to profit measurement during periods of price level changes. 1951. *Pennsylvania.*

William R. Bennett, M.S., Louisiana State. The economics of self-service meat marketing. 1950. *Illinois.*

Edward L. Brink, B.S., Pennsylvania, 1940; M.A., 1948. The age distribution of the farm and non-farm population and its marketing implications. *Pennsylvania.*

James D. Butterworth, M.B.A., Northwestern, 1941. What changes have taken place in fresh fruit and vegetable wholesaling operations in the Chicago South Water Market during the period from 1938 to 1948. 1951. *Northwestern.*

Robert E. Carmody, B.S., St. Louis, 1943; M.S., 1948. The economic theory of demand in Firestone Tire and Rubber Company's price quality study. 1950. *St. Louis.*

Leonard Chadwick. Production and marketing in the California Wine Industry. 1951. *California.*

Russell L. Chrysler, M.A., Minnesota, 1937. Determining salesmen's territories. 1951. *Northwestern.*

W. Arthur Cullman, B.A., Yale, 1937; M.B.A., Harvard, 1939. The marketing of tobacco products. 1950. *Ohio State.*

William R. Davidson, B.A., College of Emporia, 1940; M.S., Washington University, 1947; B.A., 1947. Merchandise layout for department stores. 1951. *Ohio State.*

Isadore Fine, B.S., Rhode Island State, 1942; M.S., Columbia, 1947. Retail trade area measurement. 1952. *Columbia.*

Donald M. Fort, B.A., Grinnell, 1938; M.A., Illinois, 1940, 1944. Costs and decisions in pork processing: a case study. 1951. *Chicago.*

Ray W. Fowler, B.A., Union College, Lincoln, 1929; M.S., Idaho, 1941. The emergence and development of inventory pricing methods. 1951. *Nebraska.*

John F. L. Ghiardi, B.A., Sacred Heart Seminary, 1939; M.S., Catholic, 1942. Some analytical consideration of recent trends in profits of manufacturing corporations in the United States. 1952. *Catholic.*

William H. Harris, Jr., B.S., Denver, 1947; B.A., 1947; M.B.A., Ohio State, 1948. An analysis of methods used in training wholesale driver-salesmen. 1952. *Ohio State.*

Howard B. Hovda, B.A., Minot State Teachers' College, 1932; M.S., North Dakota, 1938. History and development of Midland Cooperative Wholesale. 1951. *Minnesota.*

Milan R. Karas, B.A., Ohio Wesleyan, 1937; M.A., Kent State, 1942. The contribution of the wholesaler to the trading area of Cincinnati. 1951. *Ohio State.*

Henry A. Kriebel, B.S., Lehigh, 1932; M.A., 1937. Study in the need for special purpose financial statements. 1953. *Columbia.*

L. John Kutish, B.S., Iowa State, 1943. Marketing of industrial molasses. 1951. *Wisconsin.*

C. L. Littlefield, B.S., Central Oklahoma State Teachers College, 1931; M.S., Oklahoma A. & M., 1941. The measurement and analysis of peak loads of office work volume in insurance companies. 1950. *Ohio State.*

Harry A. Lipson, B.S., Alabama, 1939; M.B.A., Northwestern, 1941. Department stores affiliated groups. 1950. *Pennsylvania.*

Simon Lopata, B.A., Brooklyn, 1938; M.A., 1940. Testing of commodities through actual uses; implications of such testing to the field of marketing. 1953. *Columbia.*

James F. McGraith, B.S., Iowa, 1940; M.A., 1947. Business and economic effects of distribution cost analysis. 1952. *Columbia.*

F. Byers Miller, B.S., Baldwin Wallace, 1934; M.B.A., Ohio State, 1940. Contribution of wholesaling to the Richmond, Virginia, trading area. 1951. *Ohio State.*

David E. Moser, B.A., Willamette, 1935; M.S., Columbia, 1938. Manufacturer-dealer relations: a study of manufacturer assistance to retailers and its significance to the distributive function. 1952. *Columbia.*

Frank H. Mossman, M.B.A., Northwestern, 1938. Training salesmen in the machine tool industry. 1951. *Northwestern.*

John M. Rathmell, B.A., North Central College, 1933; M.B.A., Pennsylvania, 1940. The economics of trade fairs and exhibits. 1951. *Pennsylvania.*

Stewart H. Rewoldt, B.B.A., Michigan, 1946; M.B.A., 1947. Economic effects of market information. 1951. *Michigan.*

Gloria P. Smythe, B.A., Vassar, 1945; M.A., Columbia (Teachers College), 1946. Resale price maintenance in the distribution of package liquor in New York State. 1953. *Columbia.*

Robert M. Strahl, B.A., Muskingum, 1935; M.B.A., Ohio State, 1939. Executive training in department stores—a case study. 1950. *Ohio State.*

Washington Sycip, B.S.C., University Santo Tomas (Manila), 1939; M.S.C., 1940. Formulation of accounting principles. 1953. *Columbia.*

Frank Van Brunt, M.A., Chicago, 1948. Certain community experiments in alternative systems of distribution. 1950. *Chicago.*

Wellington J. Voss, B.A., Catholic, 1918; M.A., 1942. History of the development of the department store indexes of the Federal Reserve System. 1952. *Catholic.*

Francis A. Wingate, B.A., Bowdoin, 1931; M.B.A., Harvard, 1933. Principles and methods of price determination in retailing. 1951. *Ohio State.*

George H. Zeiss, Jr., B.B.A., Texas, 1948; M.B.A., 1939. Company sponsored correspondence improvement and control programs—status, methods, and achievements. 1950. *Ohio State.*

Industrial Organization and Markets; Public Regulation of Business

Degrees Conferred

David A. Alhadeff, Ph.D., Harvard, 1950. The market structure of commercial banking in the United States.

Mariam K. Chamberlain, Ph.D., Harvard, 1950. Investment policies of large corporations.

Hollis B. Chenery, Ph.D., Harvard, 1950. Engineering bases of economic analysis.

Marshall R. Colberg, Ph.D., Michigan, 1950. Federal control of construction following World War II.

Michael Conant, Ph.D., Chicago, 1949. Aspects of monopoly and price policies in the farm machinery industry since 1902.

Lester E. Edmond, Ph.D., Harvard, 1950. Market dominance in the shoe machinery industry.

George H. Ellis, Ph.D., Harvard, 1950. Postwar industrial location in New England.

Edward J. Fox, Ph.D., California, 1950. The contribution of the Federal Trade Commission to the public regulation of advertising.

Donald F. Heany, Ph.D., Harvard, 1950. The "chosen instrument" policy in international aviation.

Charles H. Hession, Ph.D., Columbia, 1950. Competition in the metal food container industry, 1916-1946.

Howard H. Hines, Ph.D., Harvard, 1950. Ophthalmic goods: industrial structures and competitive behavior in the United States.

Thomas E. Hogan, Ph.D., Wisconsin, 1950. The wartime wage stabilization policy.

Samuel M. Loescher, Ph.D., Harvard, 1950. Imperfect collusion in the Portland cement industry: basing-point pricing and the Cement Institute case.

Alan S. Manne, Ph.D., Harvard, 1950. Petroleum refining: a case study in joint supply.

Seymour Melman, Ph.D., Columbia, 1950. Administrative overhead functions in manufacturing industry.

Edward G. Misey, Ph.D., Columbia, 1950. Management planning in the national administration.

Gilbert W. Nutter, Ph.D., Chicago, 1949. A quantitative study of the extent of enterprise monopoly in the United States: 1899-1939.

Peter O. Steiner, Ph.D., Harvard, 1950. Workable competition in the radio broadcasting industry.

Robert J. Sutherland, Ph.D., Toronto, 1950. Economic and political consequences of air power.

Harold G. Vatter, Ph.D., California, 1950. Some problems of small enterprise as seen in four selected industries.

Theses Completed and Accepted

Orris C. Herfindahl, B.B.A., Minnesota, 1939. Concentration in the steel industry. 1950. *Columbia.*

Louis Marengo, B.A., California; I.A., Harvard. Basing point pricing in the steel industry. *Harvard.*

David K. Smith, B.A., Middlebury, 1942; M.B.A., Harvard, 1946; M.A., 1949. The problems of a new firm in an oligopolistic industry: Kaiser-Frazer's experience in the automobile industry. 1951. *Harvard.*

Theses in Preparation

Edgar S. Bagley, U.C.L.A., 1936. The application of the federal antitrust laws to some aspects of market structure. 1950. *Iowa State.*

Harold J. Barnett, B.S., Arkansas; M.S., California; M.A., Harvard. Economic aspects of atomic energy. 1951. *Harvard.*

Harry L. Barrett, B.A., Rochester, 1942; M.A., Harvard, 1950. Price and output policy in gypsum industry. 1951. *Harvard.*

Paul C. Cohen, B.S., Northwestern, 1942. The economics of price discrimination: a study of theory and public policy. 1951. *Northwestern.*

Arnold H. Diamond, B.B.A., College of the City of New York, 1946; M.A., Columbia,

1947. The public corporation—a study of the New York City Housing Authority. 1952. *Columbia.*

Arthur T. Dietz, B.A., Wesleyan, 1946; M.A., Princeton, 1948. An appraisal of decrees under the Sherman Act. 1951. *Princeton.*

E. Wayles Browne, Jr., B.A., Stanford, 1929; M.B.A., Harvard, 1932; M.P.A., 1948; M.A., 1949. A national rubber policy. 1954. *Harvard.*

Herbert W. Fraser, B.A., Swarthmore College, 1943; M.A., Princeton, 1949. Corporate concentration and peripheral competition. 1951. *Princeton.*

Harry Frumerman, B.S., College of the City of New York, 1933; M.A., Columbia, 1934. Jay Gould—a study of entrepreneurship. 1952. *Columbia.*

Thomas G. Gies, M.A., Michigan, 1948. The effect of trade associations upon competition in American industry. 1950. *Michigan.*

Ridgeway Hoegstedt, B.A., California, 1929; M.A., 1933. The relation between inventoriable costs and selling prices of certain large industrial corporations, 1935-1945. 1951. *Columbia.*

Simeon Hutner, B.A., Columbia, 1937; M.B.A., New York, 1940; M.A., Princeton, 1946. The economics of war. 1950. *Princeton.*

Rudolph Jones, B.A., Shaw, 1930; M.A., Catholic, 1947. The position of small business in the American economy. 1951. *Catholic.*

Henry K. Krauskopf, B.B.A., Cincinnati, 1940; M.A., Columbia, 1949. The Reconstruction Finance Corporation in war and peace, 1942-49. 1951. *Columbia.*

John S. McGee, B.A., Texas, 1947. The Robinson-Patman Act: its philosophy and interpretation. 1951. *Vanderbilt.*

James W. McKie, B.A., Texas, 1943; M.A., 1947; M.A., Harvard, 1949. Bilateral oligopoly in industrial markets. 1951. *Harvard.*

W. H. Martin, B.A., Princeton, 1942; M.A., Harvard, 1949. An economic analysis of the aluminum decision. 1950. *Harvard.*

Norman W. Nelson, B.A., Tufts, 1948; M.A., Fletcher School, 1950. Subsidies to producers as a substitute for tariffs. 1950. *Fletcher School of Law and Diplomacy.*

John H. Nixon, B.A., Swarthmore, 1935; M.A., Harvard, 1949. Government control of lumber prices in World War II. 1950. *Harvard.*

Gustav F. Papanek, B.S., Cornell; M.A., Harvard. Food rationing in the United Kingdom and on the continent. 1950. *Harvard.*

Henry A. Peck, B.A., Tufts, 1942; M.A., Fletcher School, 1947. State trading. 1951. *Fletcher School of Law and Diplomacy.*

Joseph D. Phillips, Jr., B.A., California, 1937. The position of small enterprises in the American economy. 1952. *Columbia.*

Edward W. Proctor, B.A., Brown; M.A. Industrial explosives industry—a case study of anti-trust policy. 1950. *Harvard.*

Gideon Rosenbluth, B.A., Toronto, 1943. Industrial concentration in post-war Canada and the effects of the war. 1952. *Columbia.*

William Ross, B.A., Millsaps College, 1942; M.A., Duke, 1947. Industrial promotion by Southern States. 1952. *Duke.*

W. W. Shearer, B.A., Wabash, 1936; M.A., Wisconsin, 1941; M.A., Harvard, 1949. Competition in farm machinery. 1950. *Harvard.*

Richard B. Simons, B.A., Miami University, 1941. The controversy over the nationalization of the British coal industry, 1919-1946. 1951. *Chicago.*

Abraham Sondak, B.A., Brooklyn, 1934; M.A., Columbia, 1936. The history of the competitive policies of the United States Steel Corporation. 1951. *Columbia.*

Richard A. Tybout, M.A., Michigan, 1949. Control of atomic energy. 1951. *Michigan.*

Raymond F. Wallace, M.B.A., Texas, 1945. The economic background and managerial decisions in the location of industrial plants in Mississippi under the BAWI Program. 1950. *Northwestern.*

Herbert Weiner, B.S., College of the City of New York, 1941; M.A., Columbia, 1943. Public policy and the regulation of discrimination in employment. 1952. *Columbia.*

Jared S. Wend, M.A., Michigan, 1947. Federal control of the dairy industry. 1951. *Michigan.*

William V. Wilmot, Jr., B.A., Syracuse, 1937; M.A., 1939. Some theoretical considerations of the restrictive practices of cartels. 1950. *Wisconsin.*

Charles M. Winston, B.A., Minnesota, 1941. Price and output policies of public enterprises. 1951. *Yale.*

Bernard Zagorin, B.A., Chicago, 1942; M.A., 1948. A study of the patent policy of the alien property custodian and its effect on the American chemical industry (dyestuffs). 1950. *Chicago.*

Public Utilities; Transportation; Communications

Degrees Conferred

Dole Anderson, Ph.D., New York, 1950. The impact of the limited service carrier on the soundness of the air transport system of the United States: an appraisal of the "specialist" doctrine of the Civil Aeronautics Board.

Kenneth G. Clare, Ph.D., Southern California, 1950. An analysis of dual regulation of electric utility and natural gas industries.

Jim A. Constantin, Ph.D., Texas, 1950. The development of regulation of international aviation: United States participation and policy.

Townes L. Dawson, Ph.D., Texas, 1950. Safety in air transportation in the United States.

Vernon R. Fryburger, Ph.D., Illinois, 1950. Economic implications of national policy for distributing radio broadcast service.

Jesse B. Johnson, Ph.D., Texas, 1950. Passenger transportation study of Bryan and College Station, Texas.

Theses in Preparation

Robert E. Berger, B.A., Columbia, 1938; M.A., 1939. History of the Chesapeake and Ohio Railway. 1951. *Columbia.*

George D. Bodenhorn, M.A., Chicago, 1948. Analysis of railroad regulation by the Interstate Commerce Commission. 1951. *Chicago.*

George H. Borts, B.A., Columbia, 1947; M.A., Chicago, 1949. Production relations in the railroad industry. 1951. *Chicago.*

Carl E. Calohan, M.S., Alabama, 1949. The cost concepts of the Interstate Commerce Commission. 1952. *Florida.*

William R. Dieckman, M.A., Michigan, 1947. Rate regulation in the air transport industry. 1951. *Michigan.*

Francis Duncan, B.A., Ohio Wesleyan, 1943; M.A., Chicago, 1947. History of the Goodrich Lake Transportation Company. 1951. *Chicago.*

Robert S. Einzig, M.A., Michigan, 1949. Competition in the air transport industry: a case study in public control. 1951. *Michigan.*

Barbara A. Feinn, B.A., Smith, 1946. A study of public utility regulation in Connecticut. 1951. *Yale.*

Hubert H. Frisinger, M.A., Michigan, 1948. Michigan state highway expenditure policy. 1951. *Michigan.*

Michael Gort, B.A., Brooklyn, 1943. Capital expenditures in electric power: a study of investment behavior. 1952. *Columbia.*

Richard Hellman, B.A., Columbia, 1934. Government competition in public utilities. 1952. *Columbia.*

Henry W. Hewetson, B.A., Toronto, 1924; M.A., British Columbia, 1925. An examination of the distance principle of railway freight making with references to Canadian conditions. 1950. *Chicago.*

Edwin Hughes, B.A., Williams, 1919; M.A., 1934. The St. Paul reorganization. 1952. *Columbia.*

Louis C. James, B.S., Virginia, 1945; LL.B., 1931; M.A., Columbia, 1948. Relations of the North American railroads: a study in international cooperation of the railroads of Canada, Mexico and the United States. 1952. *Columbia.*

Harry T. Koplin, B.A., Oberlin 1947. Certification criteria under the Natural Gas Act. 1951. *Cornell.*

Mildred Laverell, B.A., Vassar, 1942; M.A., Pennsylvania, 1943. Factors determining cash holdings of electric utility firms. 1952. *Pennsylvania.*

Harvey J. Levin, B.A., Hamilton, 1944; M.A., Columbia, 1948. A study in newspaper ownership of radio. 1952. *Columbia.*

Isaac T. McKillop, B.B.A., College of the City of New York, 1939. Management program of the Rural Electrification Administration. 1953. *Columbia.*

Fredric P. Morrissey, B.Com., Toronto, 1943; M.Com., 1946. Economic study of the Ontario Hydro-Electric Power Commission. 1951. *Columbia.*

Edward Neuner, B.A., Brooklyn, 1944; M.A., Wisconsin, 1945. State and federal regulation of natural gas industry. 1952. *Columbia.*

James Payne. Some economic aspects of U. S. international air carrier operations. 1951. *Illinois.*

Samuel B. Richmond, B.A., Harvard, 1940; M.B.A., Columbia, 1948. Telephone rate structure. 1953. *Columbia.*

Daniel W. Rohrbaugh, B.A., Franklin and Marshall, 1935; M.A., Duke, 1941. Economics of air freight transportation. 1951. *Pennsylvania.*

Charles E. Stonier, B.S., Syracuse; M.B.A., Wharton School, Pennsylvania. The Long Island Railroad: a case study in time jointness. 1951. *Pennsylvania.*

Richard S. Suter, B.A., Harvard, 1941; M.A., Columbia, 1948. The administration of the electric power industry in the Soviet Union, 1932-1948: a case study in Soviet public administration. 1952. *Columbia.*

Ralph N. Traxler, Jr., B.A., Mercer, 1947; M.A., Colorado, 1947. The Texas and Pacific Railroad land grant. 1951. *Chicago.*

Clinton L. Warne, B.A., Colorado, 1947; M.A., Clark, 1948. Some factors of the impact of the automobile on the Nebraska economy. 1951. *Nebraska.*

William Weiner, B.A., Texas, 1939; M.A., 1946. The British electric industry—a study in nationalization. 1952. *Columbia.*

Charles A. Williams, M.B.A., Pennsylvania, 1947. Economic analysis of the Pennsylvania Turnpike. 1951. *Pittsburgh.*

Ernest W. Williams, Jr., B.S., Columbia, 1938; M.S., 1939. Rail-motor rate competition as regulated by the I.C.C. since the Motor Carrier Act of 1935. 1952. *Columbia.*

Philip W. Young, B.A., Hamline University, 1940; M.A., Chicago, 1947. The history of the good roads movement in Illinois, 1900-1920. 1951. *Chicago.*

William M. Zentz, M.A., Michigan, 1947. Simplification and integration of public utility holding companies. 1951. *Michigan.*

Industry Studies

Degrees Conferred

David C. Botting, Jr., Ph.D., Chicago, 1950. History of the motion picture industry in Latin America.

Arthur A. Bright, Jr., Ph.D., Chicago, 1949. The electric-lamp industry: technological change and economic development from 1800 to 1947. (Published by the Macmillan Company, 1949.)

Everett J. Burtt, Jr., Ph.D., Duke, 1950. An economic appraisal of the New England fishing industry.

Mills G. Clark, Ph.D., Harvard, 1950. Some economic problems of the Soviet iron and steel industry.

William I. Greenwald, Ph.D., New York, 1950. The motion picture industry: an economic study of the history and practices of a business.

Hsiu-Yung Hsia, Ph.D., Southern California, 1950. Tungsten as a strategic metal: a case study of economic control.

Rodney, F. Luther, Ph.D., Minnesota, 1949. The motion picture industry.

HERMAN E. MICHL, Ph.D., Pennsylvania, 1950. The textile industries—an economic analysis.

HAROLD C. PASSER, Ph.D., Harvard, 1950. The development of the electrical manufacturing industry in the United States.

Theses Completed and Accepted

WILLIAM A. HAYES, B.A., De Paul, 1942; M.A., Catholic, 1948. The hotel industry in the American economy. 1951. *Catholic.*

ROYAL H. RAY, B.A., DePauw, 1927; M.A., Wisconsin, 1935. Concentration of ownership and control in the American daily newspaper industry. *Columbia.*

LLOYD B. SAVILLE, B.A., Pennsylvania, 1935; M.A., Columbia, 1936. Price determination in the gray-iron foundry industry. 1950. *Columbia.*

Theses in Preparation

GENE ALDRICH, M.A., Oklahoma A. & M. College, 1938. The coal industry in Oklahoma. 1951. *Oklahoma.*

ROBERT R. AURAY, B.A., Georgetown, 1947; M.A., 1949. Production functions for a malleable casting firm. 1952. *Columbia.*

GUY BLACK, M.A., Chicago, 1948. Grape industry market control programs. 1951. *Chicago.*

PETER M. CODY, B.A., Yale, 1947. Market structure of the automobile industry. 1951. *Yale.*

EDWIN J. COHN, JR., B.A., Harvard, 1942. Regional location of industry in the Pacific northwest. 1951. *Columbia.*

ROBERT H. COLE, B.S., Illinois, 1939; M.S., 1940. Some marketing aspects of vertical integration in the Southeastern textile industry. 1952. *North Carolina.*

PAUL W. COOK, JR., B.A., Brown, 1948. The economic basis and effect of the development of synthetic liquid fuel processes. 1951. *Chicago.*

CHARLES R. DEAN, B.S., Harvard, 1945. Economic aspects of the legitimate theater. 1951. *Columbia.*

EDGAR O. EDWARDS, B.A., Washington and Jefferson, 1947; M.A., Johns Hopkins, 1949. Expansion in the chemical industry in the United States. 1950. *Johns Hopkins.*

ADA M. HARRISON, B.A., State College of Washington, 1941; M.A., Radcliffe, 1949. Economic analysis of the furniture industry. 1952. *Harvard.*

GLENN HODGE, M.S., Denver, 1941. The paper industry with special reference to Louisiana. 1941. *Louisiana State.*

JOHN R. MALONE, M.A., Kansas, 1949. An economic description of the daily newspaper in America with emphasis on monopoly forces. 1952. *Kansas.*

WALTER S. MEASDAY, B.A., William and Mary, 1941. The American jeweled watch industry. 1950. *Massachusetts Institute of Technology.*

JAMES A. MORRIS, B.A., Northwestern, 1942; M.A., Harvard, 1947. The woolen and worsted industry in the South. 1952. *Harvard.*

WALLACE B. NELSON, Iowa, 1948. The oil industry: a case study in imperfect competition. 1950. *Iowa State.*

W. G. PHILLIPS, M.A., Toronto, 1947. Farm implement industry. 1951. *Toronto.*

FRANK S. PINET, M.B.A., Kansas, 1947. A study of the garment industry in Greater Kansas City. 1951. *Kansas.*

MARTIN M. PSATY, B.A., California, 1939. Output and productivity in building construction. 1952. *New York.*

GERTRUDE SCHROEDER, B.A., Colorado State College of Education, 1940; M.A., Johns Hopkins, 1948. The growth of the business unit in the iron and steel industry. 1950. *Johns Hopkins.*

JAMES R. SIMPSON, B.A., Princeton, 1941. Integration in the textile industries. 1950. *Harvard.*

ORANGE A. SMALLEY, B.S.C., Roosevelt College, 1948. Aspects of competition in the American dry cleaning industry. 1951. *Northwestern.*

FENELON DEV. SMITH, B.S.C., South Carolina 1929; M.A., South Carolina, 1942. A history of the textile industry of Columbia, South Carolina. 1951. *Kentucky.*

HERBERT E. STRINER, M.A., Rutgers, 1948. An analysis of the bituminous coal industry in terms of total energy supply and a synthetic oil program. 1950. *Syracuse.*

NORMAN WEINBERG, B.A., Western Reserve, 1947; M.A., Columbia. Building costs and fluctuation in building. 1952. *Columbia.*

Land Economics; Agricultural Economics; Economic Geography

Degrees Conferred

RALPH L. BAKER, Ph.D., Iowa State, 1949. Some factors affecting quantity and quality of eggs marketed by certain producers.

SOLON L. BARRACLOUGH, Ph.D., Harvard, 1950. Forest land ownership in New England, with special reference to forest holdings of less than 5000 acres.

GLEN T. BARTON, Ph.D., Harvard, 1950. Labor productivity.

RUSSELL W. BIERMAN, Ph.D., Harvard, 1950. Agriculture in the Fifth Federal Reserve District; a program for readjustment.

VALENTINE J. BRENSIKE, Ph.D., Wisconsin, 1949. The A.A.A. and subsequent farm programs in Wisconsin.

KEITH O. CAMPBELL, Ph.D., Chicago, 1949. Some aspects of Australian agricultural price policy.

HAROLD B. CLARK, Ph.D., Kentucky, 1950. The role of farmer cooperatives in the marketing of dark tobacco in Kentucky and Tennessee.

HUGH L. COOK, Ph.D., Wisconsin, 1950. Preferences and use practices for non-fat dry milk solids by food processors.

GRADY B. CROWE, Ph.D., Virginia, 1950. Economics of the mechanization of cotton.

RAM DAS, Ph.D., Wisconsin, 1950. Methods of improving agriculture in India.

JOHN H. DAVIS, Ph.D., Minnesota, 1949. An economic analysis of the tax status of farmer cooperatives.

ABRAM W. EPP, Ph.D., Minnesota, 1950. An economic study of the place of forage production in the Southeast grain and livestock area of Nebraska.

ORVILLE J. HALL, Ph.D., Minnesota, 1949. Drying of Arkansas rice—economic considerations and consequences.

JACOB KAPLAN, Ph.D., Harvard, 1950. Economic growth in Eastern Europe.

VLADIMIR KATHKOFF, Ph.D., Ohio State, 1950. Soviet agriculture since 1940.

THOMAS A. KELLY, Ph.D., Vanderbilt, 1950. The impact of the war upon the Southern economy.

SHUBERT SHUI-CHIEN LIAO, Ph.D., Texas A. & M., 1950. An economic study of the Texsun Citrus Exchange.

WOODROW W. MCPHERSON, Ph.D., Harvard, 1950. Opportunities for economic adjustments in agriculture with particular reference to the Southern Piedmont of North Carolina.

JAMES MADDOX, Ph.D., Harvard, 1950. Farm Security Administration.

RONALD L. MICHELL, Ph.D., Harvard, 1950. Interregional competition in agriculture.

AARON G. NELSON, Ph.D., Iowa State, 1949. Experience of the Federal Land Bank with loans in four North Central Iowa counties 1917-1947.

PAUL E. NELSON, JR., Ph.D., Iowa State, 1949. The Iowa school lunch program: a theoretical and quantitative analysis.

ERNEST J. NESIUS, Ph.D., Iowa State, 1950. Allocation of farm resources for economic production and utilization of pastures in the Blue Grass region of Kentucky.

NORRIS T. PRITCHARD, Ph.D., Iowa State, 1949. An economic analysis of the Indianapolis fluid milk market.

PHILIP M. RAUP, Ph.D., Wisconsin, 1949. Land reform in programs in post-war Germany.

RICHARD A. SABATINO, Ph.D., Pennsylvania, 1950. The housing policy of the British labor government.

SISTER ANN EDWARD SCANLON, Ph.D., Chicago, 1949. The rise of Duluth as an ore port, 1901-15: an economic study.

BING-KUN SHAO, Ph.D., Wisconsin, 1950. Methodology in the development of agricultural economics in China.

AJAIB SINGH, Ph.D., Ohio State, 1950. Group farming in North America with a view to the application of the technique in India.

CHIEN CHUNG WAN, Ph.D., Wisconsin, 1950. Consolidated balance sheet and income of Wisconsin agriculture since 1910.

RICHARD G. WHEELER, Ph.D., Harvard, 1950. Economic problems of dairy farm organization in Northern New England.

FREDERICK A. WILLIAMS, Ph.D., Wisconsin, 1949. Patterns and problems of acquisition, utilization and maintenance of agricultural lands among negroes in Washington Parish, Louisiana.

NOEL H. WOOD, Ph.D., Virginia, 1950. Production and marketing practices in one-variety cotton communities with especial reference to Arkansas.

Theses in Preparation

ROBERT L. ALLEN, B.A., University of Redlands, 1947; M.A., Harvard, 1950. The influence of power on industrial location. 1951. *Harvard.*

RICHARD B. ANDREWS, B.A., Wisconsin, 1936; M.A., 1940. An examination of the post-war adjustments, trends, and problems in the Madison, Wisconsin housing market. 1951. *Wisconsin.*

KENNETH L. BACHMAN, B.S., Oklahoma A. & M.; M.S., Illinois. Chapters on farm size. 1951. *Harvard.*

SHERWOOD O. BERG, B.S., South Dakota State College, 1947; M.S., Cornell, 1948. An economic analysis of agricultural production credit in Minnesota. 1950. *Minnesota.*

CHARLES E. BISHOP, B.S., Berea College, 1946; M.S., Kentucky, 1947. Off-farm employment as a means of improving family opportunities in agriculture. 1951. *Chicago.*

TED R. BRANNEN, B.S., Arkansas, 1944; M.S., 1947. The surplus problem in agriculture. 1951. *Texas.*

ROBERT E. BRANSON, B.S., Southern Methodist, 1941; M.P.A., Harvard, 1948; M.A., 1949. The agricultural marketing systems of Puerto Rico and their economic efficiency. 1951. *Harvard.*

OWEN L. BROUGH, B.S., Utah State Agriculture College, 1946; M.S., 1947. Economics of marketing hogs by carcass, weight and grade. 1950. *Iowa State.*

JOHN T. BUCK, B.S., Western Kentucky State, 1938; M.S.A., Kentucky, 1947. An economic analysis of the shift from cream to whole milk in Minnesota cooperative creameries. 1950. *Minnesota.*

DALE E. BUTZ, M.S., Cornell, 1948. An economic analysis of the Minnesota dry milk industry. 1951. *Minnesota.*

WEN-LIN CHIA, B.S., Central University of China, 1943; M.S., Wisconsin, 1949. An analysis of the agricultural income in Wisconsin. 1951. *Wisconsin.*

JERE W. CLARK, B.B.A., Georgia, 1946; M.S., 1948. Changes in the regional economic structure of Virginia, 1900-1950. 1952. *Virginia.*

PHILIP E. COLDWELL, B.A., Illinois, 1946; M.S., 1947. Some aspects of the Columbia and Missouri River projects. 1952. *Wisconsin.*

JOHN H. CUMBERLAND, B.A., Maryland, 1947; M.A., Harvard, 1949. Structure of the New England economy with special reference to iron and steel. 1951. *Harvard.*

LEE M. DAY, B.S., Iowa State College, 1947; M.S., 1948. An economic analysis of leasing arrangements. 1951. *Minnesota.*

LESLIE E. DRAYTON, B.A., Alberta, 1944; M.A., 1947. Marketing fruits and vegetables in Southeastern Wisconsin. 1951. *Wisconsin.*

MAHMOUD AHMED EL-SHAFIE, B.S., Fouad I University, Cairo (Egypt), 1938; M.S., Wisconsin, 1948. Population pressure on land and the problem of capital accumulation in an industrially undeveloped area (Egypt). 1951. *Wisconsin.*

HOWARD N. FITZHUGH, B.S., Harvard, 1930; M.B.A., 1933. Harlem's medium rental housing market in 1940. 1952. *Columbia.*

FRED FLOYD, M.A., Vanderbilt, 1930. A history of the Dust Bowl. 1950. *Oklahoma.*

WILLIAM A. FRANK, B.S., Pennsylvania, 1943; M.A., Chicago, 1949. Gains and costs involved in reducing seasonal and annual variability of hog supplies. 1951. *Chicago.*

ELSAYED GABALLAH, B.S., Fouad I University (Egypt), 1938; M.S., 1945. An economic analysis of the price approach to agricultural stabilization. 1951. *Wisconsin.*

WILLIAM E. HAVILAND, B.A., McMaster 1945; M.A., Toronto, 1946; M.A., Harvard, 1950. The economics of tobacco farming in Ontario. 1950. *Harvard.*

LAWRENCE W. HAYNES, B.S., Purdue, 1936. An analysis of the ice cream industry as an outlet for dairy products. 1952. *Wisconsin.*

WILLIAM E. HENDRIX, B.S., Tennessee, 1935; M.S., 1936. Capital productivity and accumulation in agriculture in the Piedmont of Georgia. 1951. *Wisconsin.*

HANS G. HIRSCH, B.S., Minnesota, 1941; M.S., 1942. The role of cooperatives in the federal milk marketing scheme. 1950. *Minnesota.*

MELVIN R. JANSSEN, B.S., Illinois, 1943; M.S., 1948. Labor and capital substitution in cash grain areas of corn belt. 1950. *Harvard.*

HARALD JENSEN, B.A., Buena Vista College, 1938; M.S., Iowa State College, 1942. Economics of crop rotations. 1950. *Iowa State.*

MATHEWS M. JOHNSON, B.S., Temple, 1936; M.A., Pennsylvania, 1939. The Philadelphia mortgage market. 1951. *Pennsylvania.*

CLIFTON C. JONES, B.A., Marshall College, 1944. Agricultural development work of the Burlington Railroad. 1951. *Northwestern.*

ROBERT M. KLEIN, M.A., Syracuse, 1949. The location of economic activity and the optimum distribution of scarce resources. 1951. *Syracuse.*

DALE A. KNIGHT, B.S., Kansas State College, 1945; M.S., Cornell, 1946; M.A., Chicago, 1948. Anti-complementary relations among and within agricultural enterprises. 1951. *Chicago.*

GERALD KORZAN, B.S., South Dakota; M.A., Minnesota, 1948. Marketing dairy products in sparsely populated regions with special reference to Montana. 1950. *Minnesota.*

CLAYTON P. LIBEAU, B.S., Maryland, 1941; M.S., Wisconsin, 1948. Commercial movement of field seeds. 1952. *Wisconsin.*

JOHN L. LILES, B.S., Alabama Polytechnic, 1936; M.S., Illinois, 1937. The effect of state price control on changes in the dairy industry in Alabama. 1951. *Wisconsin.*

WILLIAM E. MCDANIEL, M.S., Illinois, 1943. Equitable farm leases. 1951. *Minnesota.*

STEPHEN L. MCDONALD, B.A., Louisiana Polytechnic Institute, 1947; M.A., Texas, 1948. Future agricultural policy with a view toward an integrated economy. 1951. *Texas.*

CHRISTIANA MCFADYEN, B.A., North Carolina, 1936; M.A., Columbia, 1938. The history of the American Farm Bureau Federation. 1951. *Chicago.*

FRANK H. MAIER, B.A., Valparaiso University, 1940; M.B.A., Chicago, 1941; M.A., 1949. Effects of farm leasing arrangements on resource allocation. 1951. *Chicago.*

JOE R. MOTHERAL, B.S., Texas A. & M., 1939; M.S., 1941. Progress of land tenure adjustment in a family farm area of Texas. 1951. *Wisconsin.*

JOHN C. MURDOCK, B.S., Oklahoma, 1947. The economics of petroleum conservation. 1952. *Wisconsin.*

THADDEUS J. OBAL. Integrating national agricultural and fiscal-monetary policies. 1951. *Illinois.*

ROBERT E. OLSON, B.A., Gustavus Adolphus, 1943; M.S., Minnesota, 1948. Some economic aspects of artificial insemination of dairy cattle. 1951. *Minnesota.*

JACOB OSER, B.S., Illinois, 1935; M.A., Columbia, 1947. Government price policy in agriculture. 1951. *Columbia.*

ROBERT H. PERSONS, JR., B.A., Texas, 1946. Land use in the South Plains of Texas, 1890-1950. 1952. *Columbia.*

EVERETT E. PETERSON, B.S., Montana State, 1939; M.S., 1943; M.A., Chicago, 1950. Production adjustments to the base-excess plan of milk pricing in the Detroit milkshed. 1951. ***Chicago.***

Antonio J. Posada, S.A., Facultad Nacional de Agronomia, Columbia, 1944; M.A., Wisconsin, 1947. Economics of Columbian agriculture, 1951. ***Wisconsin.***

C. Brice Ratchford, B.S., North Carolina State, 1942; M.S., 1947. Rental arrangements in a developing economy. 1951. ***Duke.***

Sydney C. Reagan, B.B.A., Texas, 1937; LL.B., 1941; M.P.A., Harvard, 1949. A study of the market for lard in the United States. 1951. ***Harvard.***

Ewart P. Reid, B.A., McGill, 1931; M.A., 1932. Transportation as a factor affecting Canadian agriculture. 1952. ***Wisconsin.***

Waldo S. Rowan, B.S., Georgia, 1940; M.S., Tennessee, 1941. Marketing seasonal surplus milk in deficit producing areas. 1952. ***Wisconsin.***

Frederic O. Sargent, B.A., Colby, 1942. Land tenure in the agriculture of France. 1951. ***Wisconsin.***

Lester C. Sartorius, B.B.A., Minnesota, 1941; M.A., 1949. Food consumption through Minneapolis eating places. 1950. ***Minnesota.***

Willard D. Schutz, B.S., Wisconsin, 1940; M.S., Montana State, 1947. An appraisal of cost benefit analysis as a basis for determining public expenditures in land development. 1952. ***Wisconsin.***

James A. Shute, B.S., Pennsylvania State, 1942; M.S., 1947. Dairy chore requirements with loose housing. 1951. ***Minnesota.***

Theodore Sielaff, M.A., Minnesota, 1944. An economic study of rural electrification in Minnesota. 1951. ***Minnesota.***

Edward J. Smith, B.S., Pennsylvania State, 1936. Economics of making and utilizing grass silage. 1951. ***Wisconsin.***

John Snare, B.S., Georgia, 1948; M.S., 1949. A study of personal resources and characteristics as they affect systems of farm tenancy. 1951. ***Minnesota.***

James H. Street, B.A., Texas, 1940; M.A., 1947. Recent technological developments in American cotton production and their social effects. 1951. ***Pennsylvania.***

Daniel W. Sturt, B.S., Virginia Polytechnic, 1947; M.S., Wisconsin, 1947. An appraisal of British agricultural policy. 1951. ***Wisconsin.***

Alex Swantz, B.S., Washington State, 1941; M.S., Minnesota, 1949. Economic effects of government regulation of fluid milk market with special reference to the Minneapolis-St. Paul market. 1951. ***Minnesota.***

Frederick R. Taylor, M.S., Minnesota, 1947. An economic analysis of quality deterioration in Minnesota eggs. 1951. ***Minnesota.***

Earl C. Thibodeaux, B.S., Louisiana State, 1941. New Orleans-Houston economic rivalry. 1953. ***Columbia.***

Procter Thomson, B.A., Ohio State, 1940; M.A., 1941. The productivity of labor in agriculture: an international comparison. 1950. ***Chicago.***

Edward H. Ward, B.S., Wisconsin, 1946. Economics of dairy marketing. 1951. ***Wisconsin.***

Labor

Degrees Conferred

R. J. Alexander, Ph.D., Columbia, 1950. Labor relations in Chile.

Howard L. Balsley, Ph.D., Indiana, 1950. The labor factor in copper mining.

Lester Blum, Ph.D., Iowa State, 1949. Economic analysis of public labor policy.

Jack Chernick, Ph.D., Minnesota, 1949. The guaranteed wage: an economic analysis of its scope and limitations under a private enterprise system.

Joel G. Colton, Ph.D., Columbia, 1950. Compulsory labor arbitration in France, 1936-1939.

Daniel M. Colyer, Ph.D., Massachusetts Institute of Technology, 1950. Industrial discipline: a case study of employee reactions in three companies.

Ernest B. Dale, Ph.D., Yale, 1950. The influence of labor-management cooperation upon productivity.

Rev. Mortimer H. Gavin, S.J., Ph.D., St. Louis, 1950. Union policies in the United States primary pulp and paper industry.

Jack Hirschleifer, Ph.D., Harvard. Price flexibility and general interdependence.

Harriet D. Hudson, Ph.D., Chicago, 1950. The Progressive Mine Workers of America, 1936-1946.

Mark L. Kahn, Ph.D., Harvard, 1950. Industrial relations in the airlines: the interaction of unions, managements, and government in a regulated and subsidized industry.

Robert M. Kamins, Ph.D., Chicago, 1950. The tax system of Hawaii.

Scott Keyes, Ph.D., Wisconsin, 1950. Housing market areas in the United States—number, size, geographical distribution, and recent growth with special reference to economic implications.

Gilbert K. Krulee, Ph.D., Massachusetts Institute of Technology, 1950. A study of organizational change.

Robert J. Lampman, Ph.D., Wisconsin, 1950. Collective bargaining of West Coast sailors, 1885-1949.

Richard H. Leftwich, Ph.D., Chicago, 1950. Some effects of collective bargaining on resource allocation: the full-fashioned hosiery industry.

Harold M. Levinson, Ph.D., Michigan, 1950. Some effects of unionism on wage trends and on the distribution of the national income, 1914-1947.

Moses Lukaczer, Ph.D., Columbia, 1950. Application of wage stabilization criteria by the Stabilization Board, January 1, 1946-February 24, 1947.

James L. McEwen, Ph.D., New York, 1950. An analysis of the early organization problems of the Retail Clerks International Association (AFL).

Robert Manhart, Ph.D., Ohio State, 1949. A comparative analysis of management and labor executives' attitudes concerning job evaluation.

Paul A. Montavon, Ph.D., Catholic, 1950. Economic and social thought of John Mitchell.

Alexander Morin, Ph.D., Harvard, 1950. Potential trade union organization of farm laborers in the United States.

John P. Owen, Ph.D., Louisiana State, 1949. Economic implications of the impact of organized labor on the Southern wage structure.

Sidney Rubin, Ph.D., California, 1950. National and regional collective bargaining and the effects of the National Labor Relations Board thereon.

Leonard R. Sayles, Ph.D., Massachusetts Institute of Technology, 1950. Grievances and union-management relations.

Brother Gerald J. Schnepp, Ph.D., St. Louis. Possible effects on economic groups of the application of the Industry Council Plan.

David S. Schwartz, Ph.D., Wisconsin, 1950. The use of compulsion in public utility labor problems.

Darrell L. Spriggs, Ph.D., Illinois, 1950. Contemporary American wage theory.

Hubert F. Stepp, Ph.D., Virginia, 1950. Wage differentials and the location of industry.

Lloyd Ulman, Ph.D., Harvard, 1950. The rise of the national union.

William H. Wesson, Ph.D., Duke, 1950. Salaries and wages in state government employment.

Wilson E. Williams, Ph.D., Southern California, 1950. The interpretation of union motives by the United States Supreme Court.

Edwin Young, Ph.D., Wisconsin, 1950. The breakdown of constitutional government in the American labor movement, 1932-1938.

Thesis Completed and Accepted

Simon Rottenberg, B.A., George Washington, 1939; M.A., Harvard, 1948. Labor cost and productivity in the Puerto Rican economy. *Harvard.*

Theses in Preparation

Henry H. Albers, B.A., Iowa, 1946. The problem of jurisdiction in trade union organization. 1951. *Yale.*

Joseph Alexander, B.S., Oklahoma, 1946; M.A., Columbia, 1947. A history of the labor movement in New York City from 1800-1935, with special reference to the period from 1900-1935—a study in the growth of organized labor. 1951. *New York.*

G. Jay Anyon, M.B.A., Pennsylvania, 1946. Trade unionists' attitudes toward scientific management. 1951. *Pennsylvania.*

Robert L. Aronson, B.A., Ohio State, 1940; M.A., 1941; M.A., Princeton, 1948. Technological change and collective bargaining. 1951. *Princeton.*

Esther R. Backer, B.A., Radcliffe, 1945; M.A., 1949. Economics of urban transportation. 1951. *Harvard.*

Samuel H. Baron, B.S., Cornell, 1942; M.A., Columbia, 1948. The "emancipation of labour" group, 1883-1894. 1952. *Columbia.*

David M. Behen, Ph.B., Chicago, 1932. The labor movement in Chicago, 1877-1896. 1951. *Chicago.*

Lawrence Bell. Wage inequities and union wage policy. 1950. *Harvard.*

Florence B. Berger, B.A., Brooklyn, 1943; M.A., Columbia, 1946. The union health center. 1952. *Columbia.*

Ralph H. Bergmann, B.A., Cornell, 1943. Worker motivations in union organizing situations. 1950. *Massachusetts Institute of Technology.*

Monroe Berkowitz, B.A., Ohio, 1942; M.A., Columbia, 1946. The Master Weavers Institute, a case study of multi-employer bargaining. 1951. *Columbia.*

Robert E. Berry, B.S., Illinois, 1947; M.A., Indiana, 1948. State labor departments: functions, organization, finances and personnel. 1950. *Wisconsin.*

John L. Blackman, Jr., B.A., Haverford, 1930; M.A., Harvard, 1948. Federal seizure and operation of industrial property as a result of labor disputes. 1951. *Harvard.*

George Blackwood, B.A., Chicago, 1942; M.A., 1947. United Automobile Workers of America, 1937-1948. 1951. *Chicago.*

Albert A. Blum, B.S., College of the City of New York, 1947; M.A., Columbia, 1948. Labor's role in New York politics, 1929-1945. 1952. *Columbia.*

Robert S. Bowers, B.A., Kansas Wesleyan, 1933; M.A., American, 1938. The Teamsters' Union: certain aspects of its internal government and "job control." 1951. *Wisconsin.*

Jewel G. G. Briggs, B.A., Kentucky, 1935; M.A., 1936. History and analysis of collective bargaining by radio artists—democracy in action. 1951. *Chicago.*

Robert L. Bunting, M.A., Chicago, 1948. A study of the labor market with respect to employer concentration. 1950. *Chicago.*

Leonard F. Cain, B.A., St. Joseph, 1943; M.A., Catholic, 1947. The Irish labor movement under the Free State and the Republic. 1951. *Catholic.*

Norman S. Cannon, B.S., Utah, 1938; M.S., Columbia, 1939. Accounting facts for settlement of wage disputes. 1952. *Columbia.*

Philip W. Cartwright, M.A., Stanford, 1942. The economics of guaranteed wages. 1950. *Stanford.*

William H. Chartener, B.A., Haverford, 1945; M.A., Harvard, 1947. History of the International Molders and Foundry Workers Union. 1951. *Harvard.*

Frank E. Childs, B.A., Willamette, 1934; M.B.A., Southern California, 1936. The flexibility of labor price. 1951. *Minnesota.*

Thomas C. Cobb, M.A., Illinois, 1947. Social and economic implications of industry-wide collective bargaining. 1950. *Illinois.*

John R. Coleman, B.A., Toronto, 1943; M.A., Chicago, 1949. Models of labor-management relations: an analysis of case studies in the United States and Great Britain. 1951. *Chicago.*

Virginia Cook, B.A., Iowa, 1936; M.A., Illinois, 1941. Administration of the Fair Labor Standards Act: an experiment in federal-state cooperation. 1951. *Columbia.*

Gershon Cooper, B.A., Chicago, 1942. Mobility of labor between agriculture and nonagriculture. 1951. *Chicago.*

Rev. Aloysius E. Cussen, B.A., Boston, 1941; M.A., Notre Dame, 1948. Trade Union policies in the Brockton shoe industry. 1951. *Columbia.*

Howard A. Cutler, B.A., Iowa, 1940; M.A., 1941. The adjustment of the industrial worker. 1951. *Columbia.*

John L. Dunbar, B.A., Marshall; M.A., Columbia, 1946. History of the coal mine workers of West Virginia. 1952. *Columbia.*

William R. Dymond, B.A., Toronto, 1943; M.A., 1946. Labor-management cooperation: a case study approach. 1950. *Cornell.*

Richard T. Eastwood, B.A., Tarkio College, 1936; M.A., Nebraska, 1939. Labor law and its administration in the Lower South. 1951. *Wisconsin.*

Manuel Eber, B.A., Rochester, 1940; M.A., Chicago, 1948. Unionism in the commercial printing industry—an economic analysis. 1951. *Chicago.*

Walter L. Eisenberg, B.S., College of the City of New York, 1941; M.A., Columbia, 1946. History and evaluation of American experience with the sit-down strike. 1951. *Columbia.*

Jack Farkas, B.B.A., College of the City of New York, 1940; M.A., Columbia, 1949. Origin and early growth of American trade unions. 1951. *Columbia.*

Grant Farr. A study of Section 7 (a) of the National Industrial Recovery Act. 1951. *California.*

Robert Faulkender, M.A., Pittsburgh, 1949. A study of actors' equity. 1951. *Pittsburgh.*

Robert R. France, B.A., Oberlin College, 1947; M.A., Princeton, 1950. Governmental intervention in strikes which threaten the public health and safety: a study of some of the fundamental problems experienced in compulsory arbitration and state seizure in four states. 1951. *Princeton.*

Cyril L. Francis, B.A., Toronto, 1940; M.A., 1946. Government seizures in labor disputes. 1951. *Wisconsin.*

Hershon Freeman, B.A., Amherst College, 1933; M.B.A., Michigan, 1936. Life insurance and organized labor in the United States. 1952. *Pennsylvania.*

Clara H. Friedman, B.A., Newark, 1942. Union security in the United States, a historical and analytical account. 1951. *Columbia.*

Herman Gadon, B.A., Dartmouth, 1947. The use of specific principles by arbitrators in the settlement of labor disputes. 1951. *Massachusetts Institute of Technology.*

Irwin Gerard, B.S., College of the City of New York, 1941; M.A., Columbia, 1947. Municipal mediation of labor disputes. 1952. *Columbia.*

Mohamed Ghozlan, Alexandria (Egypt), 1946. General wage increases and the level of employment: the 1945-48 experience. 1951. *Yale.*

Curry Gillmore, B.A., Texas, 17945; M.A., 1947. Collective bargaining in the Bell Telephone System. 1952. *Columbia.*

Sonia S. Gold, B.A., Hunter, 1938. The process of readjustment after World War I with special emphasis on shifts in the labor market. 1951. *Columbia.*

Harry I. Greenfield, B.S., College of the City of New York, 1942; M.A., Teachers College (Columbia), 1947. The theory and practice of sliding scale wage agreements, in the United States. 1951. *Columbia.*

Rush V. Greenslade, B.A., Princeton, 1938; M.A., Chicago, 1948. The economic effect of unionism in the bituminous coal mining industry. 1951. *Chicago.*

Gordon M. Haferbecker, B.Ed., Stevens Point Teachers, 1939; M.A., Northwestern, 1942. History of Wisconsin labor legislation. 1952. *Wisconsin.*

Robert Hammer, B.S., College of the City of New York, 1942; M.A., Columbia, 1945. Industrial relations in local general trucking—New York City area. 1950. *Harvard.*

Thomas T. Hammond, B.A., Mississippi, 1941; M.A., Wisconsin, 1941. Lenin on Russian trade-unions before the October Revolution. 1951. *Columbia.*

Freeman Holmen, B.A., Concordia, 1938; M.A., Oregon, 1946. An American Labor Party: an analysis of the causes of labor's political failures, with emphasis on the period 1920-1948. 1952. *Columbia.*

Arthur T. Jacobs, M.A., Wisconsin, 1935. Collective bargaining: theory versus practice. 1950. *Michigan.*

David B. Johnson, B.A., Antioch, 1942; M.S., Wisconsin, 1948. Labor relations in the atomic energy industry. 1952. *Wisconsin.*

Myron L. Joseph, B.S., City College of New York, 1942; M.A., Columbia, 1947. The effect of the Taft-Hartley Act in the Pittsburgh area. 1951. *Wisconsin.*

Grace M. Keeffee, B.A., New York, 1937. The inter-American labor movement, 1918-1950. 1952. *Columbia.*

John W. Kennedy, B.A., Duke, 1942; M.A., 1947. A history of the textile workers union in the South. 1950. *North Carolina.*

James W. Kerley, B.A., Columbia, 1943; M.A., 1944. Labor relations in the railroad industry through three decades, 1905-1935. 1951. *Columbia.*

William Koivisto, B.A., California, 1943; M.A., Chicago, 1948. The logic and value orientation of industrial relations studies. 1951. *Chicago.*

Herbert R. Kroeker, B.A., Bethel College, Newton, Kansas, 1938; M.A., Kansas, 1942. Fact finding boards and labor disputes. 1951. *Nebraska.*

Russell Kuchel, Iowa, 1942. Changing attitude of American labor unions with reference to the desirability of the planned economy. 1951. *Iowa State.*

Stanley B. Kurta, B.A., Brooklyn College, 1941. Variations in the intensity of labor effort: a study in group dynamics. 1951. *Johns Hopkins.*

Leonard A. Lecht, B.A., Minnesota, 1942. Collective wage determination in railroads. 1952. *Columbia.*

Chih-wei Lee, B.A., National Tsinghua University, 1940; M.A., Chicago, 1948. Guaranteed annual wages. 1950. *Chicago.*

Mark W. Leiserson, B.A., Harvard, 1947; M.A., 1949. Intra-firm wage structure. 1951. *Harvard.*

Mitchell Locks, B.A., Central YMCA College, 1942; M.A., Chicago, 1949. The effect of unionism on wages in a local labor market. 1951. *Chicago.*

Hugh G. Lovell, B.A., Pomona College, 1947. A field study of the mediation process. 1951. *Massachusetts Institute of Technology.*

Kenneth M. McCaffree, B.A., Southwestern College, 1940; M.A., Denver, 1942. An analysis of differentials in earnings in white collar and manual occupations. 1951. *Chicago.*

John S. McCauley, B.A., Wisconsin, 1939; M.A., 1940. Some aspects of occupational mobility among natural scientists. 1951. *Harvard.*

Thomas J. McDonagh, C.S.C., B.Ph., Gregorian University, 1939; M.A., Wisconsin, 1945. Roman Catholic thought in the American labor movement. 1950. *Wisconsin.*

Richard R. MacNabb, B.A., Grinnell, 1939; M.A., Connecticut, 1947. The organization of farm workers in the United States. 1952. *Northwestern.*

Julius J. Manson, B.A., Columbia, 1931; M.A., 1932; LL.B., Brooklyn, 1936. Arbitral procedure in labor disputes. 1951. *Columbia.*

Martha J. Marshall, B.A., Chicago, 1939; M.A., 1945. Price and wage policy in the automobile industry, 1945-1948. 1951. *Chicago.*

Eugene C. Martinson, M.A., Michigan, 1946. British trade unionism and national economic policy. 1951. *Michigan.*

Roy L. Marx, B.Ph., Carroll, 1942; M.S., Wisconsin, 1948. Wage policies in public and quasi-public employment. 1952. *Wisconsin.*

Royal Mattice, B.S., Purdue, 1933; M.A., Mississippi, 1935. The development of labor unions in Florida. 1951. *North Carolina.*

John T. Montague, M.A., Toronto, 1946. Trade unionism in the meat packing industry. 1950. *Toronto.*

Robert M. Mooney, B.A., St. Mary's University, 1941; M.A., Catholic, 1947. Labor policies in the jewelry industry: New England area. 1951. *Catholic.*

Chester A. Morgan, Iowa, 1945. An analysis of U.S. labor legislation following World War II. 1951. *Iowa State.*

Daniel P. Moynihan, B.N.S., Tufts, 1946; B.A., 1948; M.A., Fletcher School, 1949. United States and the International Labor Organization. 1951. *Fletcher School of Law and Diplomacy.*

George E. Munn, B.A., Wisconsin, 1931; M.A., 1939. Present-day labor-management thought on sound industrial relations. 1952. *Wisconsin.*

Evan B. Murray. Some causes of disharmony in union-management relations: big meat packing, 1939-49. 1951. *Chicago.*

John Parkany, D.Jur., Budapest, 1945; M.A., Georgetown, 1949. The effects of wage changes upon employment under prevailing American economic conditions. 1952. *Columbia.*

Albert R. Parker, M.Ed., Oklahoma, 1942. A history of labor relations in the mid-continent oil fields. 1951. *Oklahoma.*

Jeanne S. Pearlson, B.S., M.I.T., 1940; M.A., Radcliffe, 1947. Wage theories and wage practices pertaining to the woman worker: a study of industries in Massachusetts since World War I. 1951. *Harvard.*

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John M. Peterson, B.A., Washington, 1942; M.B.A., Harvard, 1947; M.A., Chicago, 1950. "Shock effect" of a wage increase on management efficiency. 1951. *Chicago.*

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WILSON E. WILLIAMS, B.A., Fisk, 1935; M.A., Howard, 1938. The interpretation of labor union motives by the United States Supreme Court. *Southern California.*

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Economic principles, theory, international trade, government regulation of business, labor, monetary economics: Man, 35, married, Ph.D., Columbia University. Nine years of teaching experience; 5 years of high-level government research; consultant and expert witness for Congressional committee; many publications. Now associate professor at Eastern state university; engaged in extensive research and writing program. Available in September, 1950 E243

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Economic theory, advanced and elementary, international economics, history of economic thought, industrial and labor relations, government and political theory: Man, 28, M.S., Columbia University; candidate, *Docteur es Sciences Politiques,* University of Geneva (Switzerland); Fulbright fellow, University of Amsterdam (Netherlands). Two years as foreign correspondent, Columbia Broadcasting System; 4 years of business experience as economic consultant; 1 year teaching, university level. Seeks permanent post with high-ranking institution. E350

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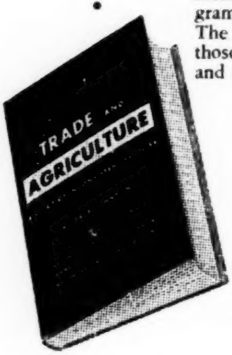

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